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A COLLECTIVE INDEX
OF THE
TRANSACTIONS AND ABSTRACTS
OF
THE CHEMICAL SOCIETY

1873—1882

COMPILED
BY
MARGARET D. DOUGAL

LONDON: GURNEY AND JACKSON
(*Successors to J. van Voorst*)
1 PATERNOSTER ROW

RICHARD CLAY & SONS, LIMITED.
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PART I—INDEX OF AUTHORS

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PREFACE.

THIS Index has been compiled under the direction of a Committee appointed by the Council of the Chemical Society, consisting of the Treasurer (Chairman), the Secretaries, the Editors, Dr. Forster Morley, Mr. J. W. Rodger, and Dr. Palmer Wynne. The actual execution of the work was entrusted to Mrs. Dougal, who has been assisted at various times by Mrs. Guthrie, Miss Green, Miss Morfec, Miss Sharpe, and Mr. D. A. Gracey.

The Committee are indebted for assistance, and for advice as to the arrangement of special subject matter, to Dr. Horace T. Brown, Professor Percy Frankland, Mr. A. G. Green, Professor Tilden, and Dr. Walker.

The work is divided into two main parts: (1) an Index of Authors arranged alphabetically, with the titles of their respective papers in chronological order; and (2) an Index of Subjects.

The general arrangement of each part is self-evident, and calls therefore for very little explanation. With a view to the more certain identification of authors care has been taken to give their names in full whenever possible. In some instances, however, even the full name has not sufficed, and it has been necessary, as a means of further identification, to add the name of the town or place with which the author is connected. Thus we have Hermann Müller of Fraureuth, Hermann Müller of Hersfeld, and Hermann Müller of Thurgau; Max Müller of Bonn and Max Müller of Brunswick; Ernst Schulze of Bonn and Ernst Schulze of Zürich. In the case of Russian authors, whose papers for the most part reach the Society's publications through German sources, the advice of Professor Mensehutkin and Dr. Lewkowitsch has been followed in employing the German system of transliteration, as more likely to lead to uniformity of spelling.

Errors in the Index of Authors found in the Annual Indexes, and discovered in the course of compiling the Collective Index of

Authors, were of course rectified before that section of the work was passed for press; other errors detected subsequently when arranging the Subject-Index are given in a separate list on p. xiii. A considerable number of papers were found to have been omitted from the Annual Indexes, and hence are not given in their proper place in the Collective Index; a list of these "Additional Entries," together with a few papers omitted from the Collective Index, will be found on p. vii. *et seq.* Errors of transcription both in the Annual and in the Collective Indexes when detected have also been corrected.

After careful consideration the Committee decided that the Index of Subjects should be essentially, and in the main, alphabetical, but that whenever practicable the substances should be further alphabetically arranged under certain well-defined main groups, *e. g.* alkaloids, carbohydrates, glucosides, terpenes, etc. It was further decided that Agricultural Chemistry, which constitutes a large and to some extent an independent section, should be placed apart.

The Collective Index will be found to differ in many particulars from the Annual Indexes upon which it is based. This was inevitable, as no consistent method of arrangement or of nomenclature was formerly followed. Modern terminology has been employed in the Collective Index, and although special care has been exercised that the same substance should not be entered under different names, it is possible that a few cases of synonyms may have escaped detection. Entries omitted in the subject-portion of the Annual Indexes, discovered in the preparation of the Collective Index, have been duly inserted; a few which have been discovered after the separate sections had been printed off are given on p. xv. In very many cases only the title of a paper appears in the Annual Indexes, and it has been necessary to give supplementary entries as more accurately describing its contents. Hence a large number of additional entries have been made in the Collective Index during its compilation; others of which the desirability was seen later, but which could not be added at the proper time, are given on p. xv. The list also includes double entries omitted from the Collective Index. Clerical and printer's errors which had escaped detection when reading the proofs of the Collective Index have, when discovered, been rectified.

In all cases where these have been definitely ascertained position numbers have been given. The sequence of radicles in the

name of a substance, and the nomenclature of acidic and aromatic radicles have been arranged in a more systematic manner than hitherto, and except in cases where the "trivial" name was judged to be too well established, the name which seemed best to express the constitution of the substance has been preferred. Alternative names have, however, been given with, of course, cross references. Entries relating to inorganic salts will be found under the name of the particular metal: thus, ferrous sulphate will be found under Iron. In the case of organic salts, where the acid is as a rule the distinctive or significant substance, it has been deemed more convenient to place the entries under the name of the acid: thus, calcium oxalate will be found under Oxalic acid. Whenever a prefix, such as *ortho*, *meta*, *para*, *iso*, *secondary*, *tertiary*, *mono*, *di* and *tri*, etc., is not part of the alphabetical arrangement, it is printed in italics.

T. E. T.

ABBREVIATIONS.

T. = Transactions.
A. = Abstracts.
o = ortho.
m = meta
p = para.
n = normal.
prim. = primary.
sec. = secondary.
tert. = tertiary.

ψ = pseudo.
d = dextro.
l = laevo.
i = inactive.
s = symmetrical.
as = unsymmetrical.
b.p. = boiling point.
m.p. = melting point.

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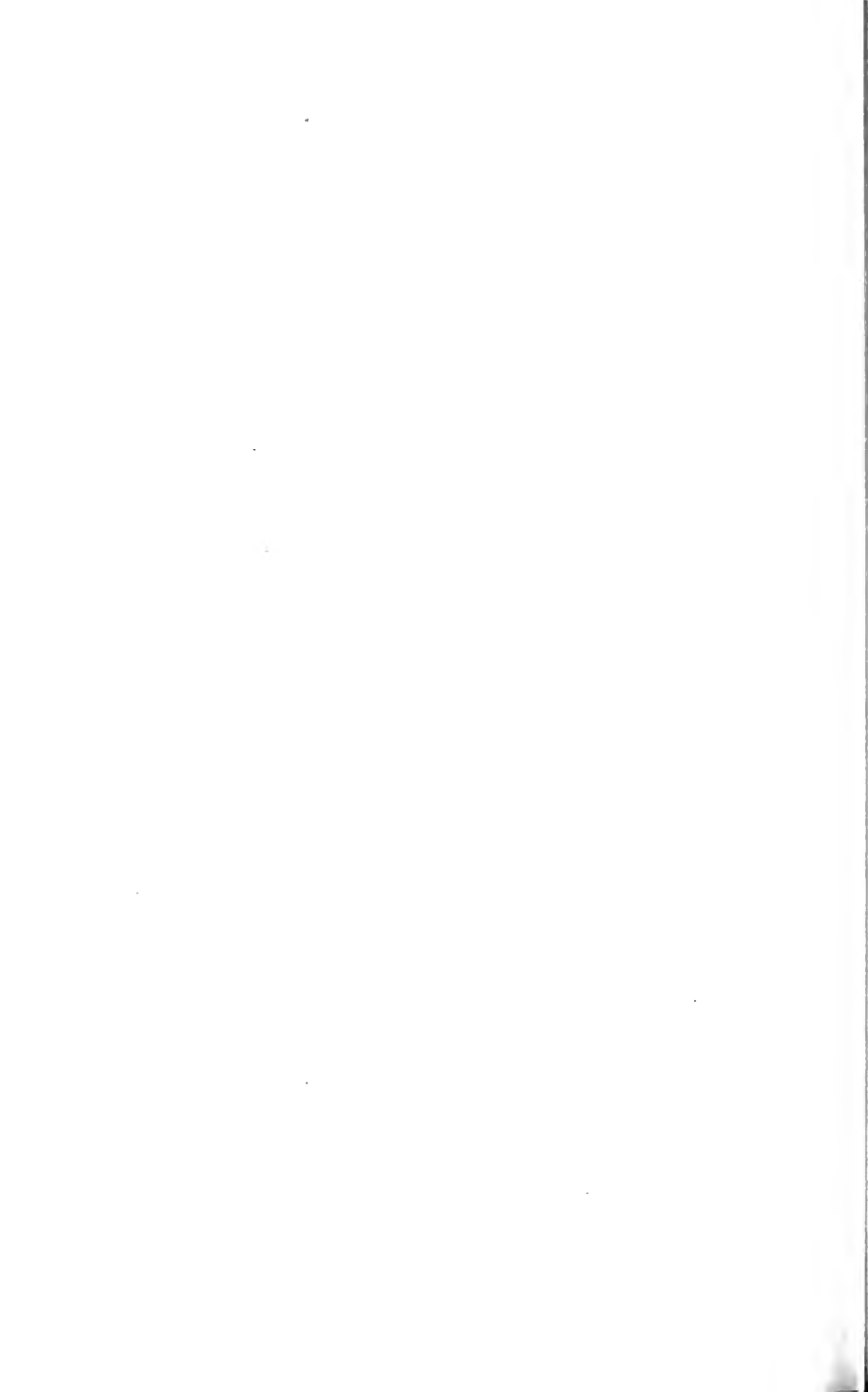
A COLLECTIVE INDEX
OF THE
TRANSACTIONS AND ABSTRACTS
OF
THE CHEMICAL SOCIETY

1873—1882

PART II—INDEX OF SUBJECTS

COMPILED
BY
MARGARET D. DOUGAL

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1 PATERNOSTER ROW



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- 3-**Aceto-o-xylidide** (WROBLEWSKI), 1879, A., 920.
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- 2-**Aceto-p-xylidide** and nitr. [m.p. 192] (SCHAUMANN), 1879, A., 52.
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- 2-**Acetoxy-5-methoxy-benzaldehyde** and **-benzoic acid** (*aceto-m-methoxy-salicylaldehyde* and *-salicylic acid*) (TIEMANN and MÜLLER), 1882, A., 53.
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- β -Acetylpenlylic acid** (HARDMUTH; HUGGENBERG), 1878, A., 782.
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- 2:4-*di*Amido- α -naphthol-2'-sulphonic acid (LAUTERRACH), 1882, A., 64.
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- tri*Amido-orceinol (STENHOUSE), 1873, 752.
- p*-Amidooxindole (GABRIEL and MEYER), 1881, A., 731.
- hex*Amido-oxhydrofluorescein hydrochloride (SCHWARZ), 1880, A., 552.
- Amidophenanthrene, α -, β - and γ - (SCHMIDT), 1879, A., 941.
- o*-Amidophenetol (GROLL), 1876, i., 247.
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- p*-Amidophenoldisulphonic acid, and its derivatives (LIMPRICHT), 1882, A., 1075.
- Amidophenolsulphonic acids. See Phenolsulphonic acids.
- Amidophenyl mercaptan. See Phenyl mercaptan.
- 4-Amidophenylacetic acid (BEDSON), 1880, T., 92.
- p*-Amidophenylacetoneitrile and its derivatives (GABRIEL), 1882, A., 1070.

- o*-Amidophenylacetylene, and its derivatives (V. BAEYER and LANDSBERG), 1882, A., 623; (MÜLLER), 1882, A., 844.
- "*o*-Amidophenylbenzoic acid, internal anhydride of" (SUDA), 1880, A., 246.
- tri-p*-Amidophenylditolylmethane ("diortholeucaniline") and its salts (FISCHER), 1882, A., 833.
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- m*-Amidophenylglyoxylic acid and amide (*m-isotic acid and amide*) (CLAISEN and THOMPSON), 1880, A., 253.
- p-di*Amidophenylic sulphide. See Aniline, thio.
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- p*-Amido-2'-phenyl-4'-methylquinoline. See Flavaniline.
- m*-Amidophenylloxamic acid (KLESEMAN), 1875, 269.
- p*-Amidophenylphenyl *mono*- and *di*-mercaptan, hydrochloride of (GABRIEL and DAMBERGIS), 1880, A., 891.
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- Amidophenylthiocarbimide (V. HOFMANN), 1880, A., 388.
- o*-Amidophenylurethane. See Ethylic *o*-amidophenylcarbamate.
- 3-Amidophthalic acid (V. BAEYER, BÜHRIG and KOENIGS), 1877, ii., 336.
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- Azobenzoic acid.** See Carboxybenzeneazobenzoic acid.
- Azoconhydrine.** See Coniinenitrosamine.
- Azocumic acid** (ALEXÉEFF), 1882, A., 971.
- Azonaphthalene.** See $\alpha\beta$ -Naphthazine.
- Azonaphthaleneresorcinolazobenzene.** See Benzeneazodihydroxybenzeneazonaphthalene.
- Azonaphthoic acid.** See Carboxynaphthaleneazo- β -naphthoic acid.
- Azonitretrethylphenyl.** See Benzeneazonitretrethane.
- Azo-opianic acid.** See Henipipinic anhydride, amido-.
- p*-Azophenetoil** (HEPP), 1878, A., 59.
dinitr- (ANDREAE), 1880, A., 466.
- Azophenetoils, *o*- and *p*-** (SCHMITT and MÖHLAU), 1879, A., 317.
- Azophenol.** See Hydroxybenzeneazophenol.
dichlor-. See Quinoneimide, chloro-.
- Azo-*o*-phenoxyacetic acid** (THATE), 1882, A., 849.
- Azophenylene.** See Phenazine.
- Azophthalic acid, and its salts** (CLAUS and MAY), 1882, A., 515.
preparation of (ANON.), 1882, A., 125.
- Azoresorcinol.** See Resazurin.
- p*-Azosulphoxybenzenephloroglucinol.** See Trihydroxybenzeneazobenzenesulphonic acid.
- Azosulphoxylxyleneresorcinol.** See Dihydroxybenzeneazoxylene-*m*-sulphonic acid.
- Azotoluene.** See Tolueneazotoluene.
- Azotolueneresorcinol.** See Dihydroxybenzeneazotoluene.
- Azotolueneresorcinolazobenzene.** See Benzeneazodihydroxybenzeneazotoluene.
- Azotoluic acid.** See Carboxytolueneazotoluic acid.
- Azotoluidine** (BUCKNEY), 1878, A., 863.
- Azoxyanisyl- β -naphthol.** See Carboxymethoxybenzeneazo- β -naphthol.
- Azoxybenzene** (PETRIEFF), 1873, 1028.
preparation of (MOLTSCHANOWSKI), 1882, A., 965; (KLINGER), 1882, A., 1061.
action of stannous chloride on (SCHMIDT and SCHULTZ), 1879, A., 630.

AZO-COMPOUNDS—

- Azoxybenzene, reduction of, to azobenzene** (WERIGO), 1873, 385.
conversion of, into oxyazobenzene (WALLACH and BELLI), 1880, A., 556; (WALLACH and KIEPENHEUER), 1882, A., 394.
- Azoxybenzene, *di*- and *tetra*-brom-** (WERIGO), 1873, 385.
dichlor- (HEUMANN), 1873, 168; (WILLGERODT), 1882, A., 953.
p-*dichloronitr-* (HEUMANN), 1873, 168; (CALM and HEUMANN), 1880, A., 880.
- Azoxybenzide, *tetrachlor-*.** See Benzeneazoxydichlorobenzene, *di*-chloro-.
- m*-Azoxybenzophenol.** See *p*-Hydroxybenzene-*m*-azobenzoic acid.
- m*-Azoxybenzoyl- β -naphthol.** See *m*-Carboxybenzeneazo- β -naphthol.
- m*-Azoxybenzoylresorcinol.** See Dihydroxybenzene-*m*-azobenzoic acid.
- m*-Azoxybenz-*o*-sulphonic acid.** See Hydroxysulphobenzeneazobenzoic acid.
- Azoxyleneresorcinol.** See Dihydroxybenzeneazoxylene.
- o*-Azoxyphenetoil** (SCHMITT and MÖHLAU), 1879, A., 317.
- Azoxyphenetoils, *trinitr-*** (ANDREAE), 1880, A., 467.
- Azoxy-*p*-toluidine** (BUCKNEY), 1878, A., 863.
- Benzeneazo-**. See also Phenylazo- and Azobenzene.
- Benzeneazoaniline** (*amidoazobenzene*; *diazomidobenzene*) and its salts (SCHMIDT), 1873, 64; (GIRARD and PAEST), 1879, A., 383; (ALEXÉEFF), 1881, A., 262.
- Benzeneazobenzeneazo- β -naphthol, and its sulphonic acids** (NIETZKI), 1881, A., 178.
- p*-Benzeneazobenzenedisulphonic acid** (JANOVSKY), 1882, A., 48, 835.
potassium salt of (LAAR), 1880, A., 322.
- Benzeneazobenzene-*p*-sulphonic acid, and its chloride** (JANOVSKY), 1882, A., 836.
action of sulphuretted hydrogen on (SCHULTZ), 1881, A., 907.
*di*bromo- (WERIGO), 1873, 384.
mono-, *di*- and *tri*-nitro-, and their salts (JANOVSKY), 1882, A., 836, 1285.
- Benzene-*m*-azobromobenzene, *m*-bromo-** (GABRIEL), 1877, i., 307.
- Benzene-*p*-azobromobenzene, *p*-bromo-** (WERIGO), 1873, 385.

AZO-COMPOUNDS —

- Benzeneazo-*p*-bromoresorcinol** (TYPEKE), 1878, A., 219.
- Benzene-*m*-azochlorobenzene**, *m*-chloro- (LAUBENHEIMER), 1876, i., 577.
- Benzene-*p*-azochlorobenzene**, *p*-chloro- (HEUMANN), 1873, 167.
- Benzeneazochlorobenzenesulphonic acid**, *p*-chloro- (CALM and HEUMANN), 1880, A., 880.
- Benzeneazo-*p*-cresol** (MAZZARA), 1880, A., 163.
- Benzeneazo-*p*-cresolsulphonic acid** (STEBBINS), 1880, A., 716, 881; 1881, A., 42.
- Benzeneazodiethylamidobenzoic acid** (GRIESS), 1877, ii., 455.
- Benzeneazodihydroxybenzeneazobenzene** (*azobenzeneazobenzene*) and **benzeneazodihydroxybenzeneazotoluene** (*azotolueneazobenzene*) (WALLACH), 1882, A., 610.
- Benzeneazodimethylamidobenzoic acid** and **benzeneazodimethylaniline** (GRIESS), 1877, ii., 455.
- Benzeneazodiphenylamine** (*phenylamidobenzene*), and the action of amyl nitrite and acetic acid on (WITT), 1879, T., 185.
- Benzeneazo-diphenyl- and -ditolyl-carbamideazobenzene** (SARAFW), 1882, A., 507.
- Benzeneazoethane** (*azophenylethane*) (FISCHER and EHRHARDT), 1878, A., 573; 1880, A., 243.
- Benzeneazohydroxybenzeneazobenzene** (*phenolbisazobenzene*) (CARO and SCHLAUBE), 1879, A., 148; (FRANKLAND), 1880, T., 752.
- and analogous compounds (GRIESS), 1876, ii., 416.
- Benzeneazo-*o*-hydroxybenzoic acid** (STEBBINS), 1880, A., 715; 1881, A., 41.
- Benzeneazomethazonic acid** (KIMICH), 1877, ii., 325.
- Benzeneazo- α -naphthol** and **- α -naphtholsulphonic acid** (TYPEKE), 1878, A., 219.
- Benzeneazo- β -naphtholdisulphonic acid** (STEBBINS), 1880, A., 881.
- Benzeneazo- β -naphtholsulphonic acid** (GRIESS), 1879, A., 316.
- Benzeneazonaphthylamine** (GIRARD and PAEST), 1879, A., 383.
- Benzeneazo- α -naphthylamine** (*diazo-benzeneamidonaphthol*) (GRIESS), 1879, A., 629.

AZO-COMPOUNDS —

- Benzeneazonitroethane** (*azonitroethyl-phenyl*) (MEYER and AMBUHL), 1875, 1202; 1876, i., 85.
- p*-bromo- (WALD), 1876, ii., 92.
- m*-nitro- (HALLMANN), 1876, ii., 93.
- Benzeneazonitroisobutane** (*nitroisobutylazophenyl*) (ZUBLIN), 1878, A., 285.
- Benzeneazo-*p*-nitrophenol** (STEBBINS), 1880, A., 715.
- Benzeneazonitropropane** (MEYER), 1876, ii., 93.
- Benzeneazo-*o*-rcinol** (TYPEKE), 1878, A., 219.
- Benzeneazophenol** (*oxyazobenzene*) and its derivatives (TSCHIRWINSKY), 1873, 1027; (KIMICH), 1876, i., 268; (SCHILLONE), 1882, A., 726.
- preparation of (MAZZARA), 1880, A., 163.
- conversion of azoxybenzene into (WALLACH and BELL), 1880, A., 556; (WALLACH and KIEPENHEUER), 1882, A., 394.
- Benzeneazophenolsulphonic acid** (GRIESS), 1879, A., 315.
- See also Hydroxybenzeneazobenzenesulphonic acid.
- Benzeneazo-*m*-phenylenediamine**.
- See Chrysoidine.
- Benzeneazophenylic benzoate** (*benzoazobenzene*) (TSCHIRWINSKY), 1873, 1027.
- Benzeneazopyrogallol** (STEBBINS), 1880, A., 390, 715, 880.
- Benzene- α and - β -azoresorcinol** (α - and β -azobenzene-diazobenzene) (TYPEKE), 1878, A., 219.
- Benzeneazothymolsulphonic acid** and its salts (STEBBINS), 1882, A., 884.
- Benzeneazo-*m*-tolylenediamine** (STEBBINS), 1880, A., 715; 1881, A., 42.
- Benzene-*m*-azoxybromobenzene**, *m*-bromo- (GABRIEL), 1877, i., 207.
- Benzene-*p*-azoxybromobenzene**, *p*-bromo- (V. HOFMANN and GEYGER), 1873, 169.
- Benzene-*m*-azoxychlorobenzene**, *m*-chloro- (LAUBENHEIMER), 1876, i., 577.
- Benzeneazoxychlorobenzene**, *p*-chloro- (HEUMANN), 1873, 167; (V. HOFMANN and GEYGER), 1873, 169.
- Benzeneazoxydichlorobenzene**, *di*-chloro- (BEILSTEIN and KURBATOFF), 1879, A., 231.

AZO-COMPOUNDS—

- Benzeneazoxychloronitrobenzene, *p*-chloro- HEUMANN, 1873, 167.
- Benzeneazoxyiodobenzene, *m*- and *p*-iodo- (GABRIEL), 1877, i., 307.
- Benzeneazoxy β -nitrobenzene (v. BAeyer and JAEGER), 1876, i., 273.
- Benzeneazo-. See also Phenylazo- and Azobenzene-.
- Benzoxiazobenzene. See Benzeneazophenyllic benzoate.
- "Benzoyldiazobenzene" (FISCHER), 1878, A., 308.
- iso*-Butylazophenyl, nitro-. See Benzeneazonitroisobutane.
- Carboxybenzeneazobenzoic acid (*azobenzoic acid*), composition of (CLAUS), 1873, 1142.
- silver salt of, action of ethylic iodide on (GOLUBEFF), 1875, 1203.
- o*-Carboxybenzene-*o*-azobenzoic acid (*o*-*azobenzoic acid*) and its barium and silver salts (GRIESS), 1878, A., 149.
- Carboxybenzeneazobenzoic acids, *o*-, *m*- and *p*-, ethyl ethers of (FITTICA), 1875, 766; 1879, A., 152.
- m*-Carboxybenzeneazo-*m*-dimethylamidobenzoic acid (GRIESS), 1877, ii., 456.
- m*-Carboxybenzeneazo- β -naphthol (*m*-*azophenoyl*- β -*naphthol*) and its salts (GRIESS), 1882, A., 49.
- m*-Carboxybenzeneazo- β -naphthol-mono- and -di-sulphonic acids (GRIESS), 1882, A., 49.
- Carboxybenzeneazonitreneane (WALD), 1876, ii., 92.
- Carboxybenzeneazonitrobenzoic acid, nitro- (GOLUBEFF), 1874, 805.
- Carboxymethoxybenzeneazo- β -naphthol (*azophenoyl*- β -*naphthol*) (GRIESS), 1882, A., 49.
- Carboxymethoxybenzeneazo- β -naphthol-mono- and -di-sulphonic acids (GRIESS), 1882, A., 49.
- Carboxynaphthaleneazo- β -naphthoic acid (*azophthalic acid*) (v. RAKOWSKI), 1873, 392.
- p*-Carboxytolueneazo-*p*-toluic acid (*azobutic acid*) (FITTICA), 1875, 265.
- Diazoamidobenzene. See Benzeneazoaniline.
- Diazoamido-compounds (GRIESS), 1875, 143.
- action of phosgene on (SARAUW), 1882, A., 507, 608.
- Diazoamidonitrobenzene (MULLER-JACOBS), 1878, A., 110.

AZO-COMPOUNDS—

- p*-Diazoanisole, salts of (SALKOWSKI), 1875, 64.
- α -Diazoanthraquinone nitrate (BÖTTGER and PETERSEN), 1873, 389.
- Diazobenzanilide, action of phosgene on (SARAUW), 1882, A., 507.
- Diazobenzene, action of cyanogen compounds on (GRIESS), 1876, i., 932; 1880, A., 316.
- action of sulphuretted hydrogen on (GRAEBE and MANN), 1882, A., 1285.
- action of, on phenylhydrazine (FISCHER), 1878, A., 305.
- amides of (v. BAeyer and JAEGER), 1876, i., 273.
- benzenesulphinate and hydrazine derivative of (KOENIGS), 1878, A., 219.
- nitrate, thermal constants of (BERTHELOT and VIELLE), 1881, A., 809.
- reaction of nitropropane with (MEYER), 1876, ii., 93.
- bromo-, action of potassium cyanide on (GABRIEL), 1880, A., 41.
- sulphate or nitrate, action of potassium cyanide on (GABRIEL), 1880, A., 41.
- Diazobenzene-*m*-amidobenzoic acid, action of phosgene on (SARAUW), 1882, A., 608.
- Diazobenzeneamidonaphthol. See Benzeneazo- α -naphthylamine.
- Diazobenzenedisulphonic acid (HEINZELMANN), 1878, A., 409.
- its salts and its bromo-derivative (ZANDER), 1880, A., 122.
- Diazobenzene phosphonic nitrate. See Diazophosphenylic nitrate.
- Diazobenzene piperidine (v. BAeyer and JAEGER), 1876, i., 273.
- m*-Diazobenzene sulphonic acid (BERNSEN), 1875, 1029.
- Diazobenzimide (FISCHER), 1879, A., 305, 311.
- o*-Diazobenzoic acid, nitrates of (GRIESS), 1877, i., 474.
- m*-Diazobenzoic acid, sulphate of (FITTICA), 1878, A., 980.
- the semi- and $\frac{2}{3}$ -sulphate of (GRIESS), 1877, i., 475.
- Diazobenzoic acids, formation of, from amidobenzoic acid (LIMPRICHT), 1878, A., 222.
- o*- and *m*-. constitution of compounds of (GRIESS), 1877, i., 474.
- Diazo-*p*-bromobenzanilide, action of phosgene on (SARAUW), 1882, A., 609.

AZO-COMPOUNDS—

Diazobromobenzenesulphonic acid (LIMPRICHT, 1878, A., 492.

Diazo-*tri*- and -*ortho*-bromobenzenesulphonic acids (BECKFURTS, 1876, ii., 304; (SPIEGELBERG), 1879, A., 801.

Diazo-*di*-bromophenols, *o*- and *p*-, and their derivatives (BÖHMER), 1882, A., 397.

***p*-Diazo-*di*-bromophenolsulphonic acid, salts of** (BÖHMER), 1882, A., 398.

***p*-Diazo-*m*-bromotoluene-*o*-sulphonic acid** (WECKWARTH), 1874, 1093.

Diazobromotoluenesulphonic acids (SCHAFER), 1875, 162.

***o*-Diazo-*di*-bromotoluene-*p*-sulphonic acid** (HAYDUCK), 1875, 369, 462.

"Diazocamphor" (SCHIFF), 1882, A., 527.

Diazochlorothymol hydrochloride (ANDRESEN), 1881, A., 590.

Diazo-compound of α -nitronaphthylamine ("nitramidodinitronaphthylamide") (LIEBERMANN and DITTLER), 1873, 1232.

Diazo compounds (GRIESS), 1877, i., 474; 1882, A., 48; (ALEXÉEFF), 1881, A., 262.

constitution of (ERLENMEYER), 1875, 166; (BLOMSTRAND), 1875, 571.

action of, on tertiary amines (GRIESS), 1877, ii., 454.

action of hydrocyanic acid on (GABRIEL), 1880, A., 41.

decomposition of, by water (WROBLEWSKI), 1875, 73.

colouring matters derived from (WITT), 1879, T., 179.

preparation of sulphonic compounds from, by means of sulphurous acid (MÜLLER and WIESINGER), 1879, A., 933.

Diazo-compounds, nitro- (LIMPRICHT), 1874, 805.

***p*-Diazocresol** (WAGNER), 1875, 256.

Diazoethoxane (ZORN), 1879, A., 221.

Diazo-group, replacement of, by the group SO_3H (HÜBNER), 1878, A., 145.

Diazo-hydrazophenoldisulphonic acid (BALENTINE), 1880, A., 809.

Diazo-hydrocyanorosaniline. See Hexazodiphenyltolylearbinyl cyanide.

Diazo-*p*-leucaniline chloride. See Hexazotriphenylmethane chloride.

AZO-COMPOUNDS

α Diazonaphthalene, action of, on salicylic acid (FRANKLAND), 1880, T., 746.

α -Diazonaphthalenesulphonic acid (CLEVE), 1878, A., 153; (NEVILLE and WINTHER), 1880, T., 632.

Diazonitrobenzaldoxime chlorides (GABRIEL and MEYER), 1881, A., 730; (GABRIEL), 1882, A., 1070.

Diazonitrobenzenes, conversion of, into nitrophenols (FITTIG), 1874, 696.

Diazonitrobenzoic acid, formation of, from nitr-*p*-amidobenzoic acid (SALKOWSKI), 1875, 72.

***p*-Diazonitroso-oxindole chloride** (GABRIEL and MEYER), 1881, A., 731; 1882, A., 188.

***p*-Diazonitrotoluene-*o*-sulphonic acid** (WECKWARTH), 1874, 1093.

***p*-Diazo-*mono*- and -*di*-nitrotoluene-*o*-sulphonic acids** (PAGEL), 1875, 899.

***o*-Diazonitrotoluene-*p*-sulphonic acid** (HAYDUCK), 1875, 162.

***p*-Diazo-*o*-nitrotoluene-*m*-sulphonic acid** (V. PECHMANN), 1875, 80.

Diazophenetoil nitrate, *di*-bromo-, and *tri*-bromo- (MÖHLAU and OEHMICHEN), 1882, A., 396.

***p*-Diazophenol** (WESELSKY), 1875, 1203.

Diazophenols (BÖHMER), 1882, A., 396.

Diazophenoldisulphonic acid (LIMPRICHT), 1882, A., 1075.

Diazophenolsulphonic acids (BENNEWITZ), 1874, 374.

Diazophosphenylic acid and nitrate (MICHAELIS and BENZINGER), 1876, ii., 203; 1878, A., 58.

" γ -Diazo-*isophthalic* acid" (BEYER), 1882, A., 1297.

Diazo-resorcinol. See Resazurin.

Diazo-resaniline. See Hexazodiphenyltolylearbinol.

Diazo-*para*-rosaniline. See Hexazotriphenyltolylearbinol.

Diazosalicylic acid (GOLDBERG), 1879, A., 928.

***p*-Diazotoluanilide** (*diazobenzene-*p*-toluide*), action of phosgene on (SARATOW), 1882, A., 507.

***p*-Diazotoluene-*o*-sulphonic acid** (JENSSEN), 1875, 77.

Diazotoluene-*m*-sulphonic acids, *o*- and *p*- (NEVILLE and WINTHER), 1880, T., 628.

***o*-Diazotoluene-*p*-sulphonic acid** (HAYDUCK), 1874, 1091; 1875, 161.

AZO-COMPOUNDS—

- Diazoxybenzoic acid** and its salts and reactions (MICHLER), 1875, 644.
- m*-**Dihydroxybenzeneazobenzenesulphonic acid** (WITT), 1879, T., 188.
- Dihydroxybenzene-*m*-azobenzoic acid** (*m-azoxybenzoylcarescinol*) (GRIESS), 1882, A., 49.
- Dihydroxybenzeneazonaphthalene-sulphonic acid** (STEBBINS), 1880, A., 881.
- Dihydroxybenzeneazotoluene** (*azo-toluenecarescinol*) and **dihydroxybenzeneazoxylene** (*azoxylenecarescinol*) (WALLACH), 1882, A., 610.
- Dihydroxybenzeneazoxylene-*m*-sulphonic acid** (GRIESS), 1879, A., 316.
- Dimethylamidobenzenazobenzenesulphonic acid.** See Helianthin.
- Dimethylamidobenzenazobenzoic acid** (GRIESS), 1877, ii., 456.
- "Dioxyazobenzene, trinitro-"** (PETRIEFF), 1873, 1028.
- Diphenyl-azo- and -azoxy-diphenyl** (ZIMMERMANN), 1881, A., 175.
- Diphenyl-*p*-azo- and -azoxy-nitrodiphenyl, *p*-nitro-** (WALD), 1877, ii., 341.
- Diphenyldiazobenzenecarbamide.** See Benzeneazodiphenylcarbamide azobenzene.
- Di-*p*-tolyl diazobenzenecarbamide.** See Benzeneazoditolylcarbamid-azobenzene.
- Hexazodiphenyltolylcarbinyll** (*di-azocarsaniline*) hydrochloride, **hexazodiphenyltolylcarbinyll cyanide** (*diazohydrocyan-rosaniline*), **hexazotriphenylcarbinol** (*diazopararosaniline hydrochloride*) and **hexazotriphenylmethane chloride** (*di-azo-*p*-leucaniline chloride*) (E. and O. FISCHER), 1879, A., 385.
- Hydrolibromazobenzene.** See *s*-Diphenylhydrazine, dibromo.
- Hydrodiazobenzoic acid** (GRIESS), 1877, i., 475.
- Hydroxyazobenzene.** See Benzeneazophenol.
- p*-**Hydroxybenzeneazobenzene-*m*- and -*p*-sulphonic acids** (GRIESS), 1879, A., 315.
- p*-**Hydroxybenzeneazobenzenesulphonic acid**, and its derivatives (TSCHIRWINSKY), 1873, 1027; (LIMPRICHT), 1882, A., 1074.
- p*-**Hydroxybenzeneazobenzene-*p*-sulphonic acid**, sodium salt of (*trapaolinc*) (WITT), 1879, T., 184.
- nitro-** (GRIESS), 1879, A., 316.

AZO-COMPOUNDS—

- Hydroxybenzeneazobenzenesulphonic acid.** See also Benzeneazophenolsulphonic acid.
- p*-**Hydroxybenzene-*m*-azobenzoic acid** (*m-azoxybenzoylcarescinol*) (GRIESS), 1882, A., 48.
- p*-**Hydroxybenzene-*p*-azophenol** (J. EGER), 1876, i., 580.
- Hydroxybenzene-*o*- and -*p*-azophenols, *o*- and *p*-, and *t*-tribromo-** (WESELSKY and BENEDIKT), 1878, A., 498; 1879, A., 718.
- Hydroxybenzeneazophenolsulphonic acid, dinitro** (STEBBINS), 1880, A., 881.
- p*-**Hydroxybenzene-*n*-azotoluene** (KIMICH), 1876, i., 268.
- Hydroxycarboxybenzeneazonaphthalene** (*naphthylazosalicylic acid*) and its decomposition by tin and hydrochloric acid (FRANKLAND), 1880, T., 747.
- β*-**Hydroxynaphthaleneazonaphthalenesulphonic acid** (GRIESS), 1879, A., 316; (V. MILLER), 1880, A., 664.
- Hydroxysulphobenzeneazobenzoic acid** (*m-azoxybenz-*o*-sulphonic acid*) and its salts (GRIESS), 1882, A., 48.
- Naphthalene-*p*-azo-*α*-naphthol** (FRANKLAND), 1880, T., 752.
- α*-**Naphthaleneazonaphthylenediamine** (STEBBINS), 1880, A., 715; 1881, A., 42.
- Naphtholazobenzenesulphonic acid.** See *p*-Sulphobenzeneazo-*β*-naphthol.
- β*-**Naphtholazohippuric acid** (GRIESS), 1882, A., 50.
- β*-**Naphtholtetrazobenzene.** See Benzeneazobenzeneazo-*β*-naphthol.
- Naphthylazosalicylic acid.** See Hydroxycarboxybenzeneazonaphthalene.
- "triNitro-di- and -tri-oxyazobenzene"** (PETRIEFF), 1873, 1028.
- Orcinol diazotoluene.** See *o*-Toluenazo-orcinol.
- Oxyazobenzene.** See Benzeneazophenol.
- Oxybenzeneazonaphthalenesulphonic acid, nitro-** (STEBBINS), 1880, A., 881.
- Phenolbisdiazobenzene.** See Benzeneazohydroxybenzeneazobenzene.
- Phenylamidoazobenzene.** See Benzeneazodiphenylamine.
- Phenylazoacetoacetic acid** (*azobenzenecaceticacetic acid*) (MEYER), 1878, A., 396; (ZUEBLIN), 1878, A., 879.

AZO-COMPOUNDS—

Phenylazo-. See also Benzeneazo- and Azobenzene-.

Phloroglucinol-*p*-azobenzenesulphonic acid. See Trihydroxybenzeneazobenzenesulphonic acid.

o-**Sulphobenzeneazobenzenedisulphonic acids**, α - and β -, and their salts (V. REICHE), 1880, A., 805.

m-**Sulphobenzeneazobenzene-*m*-sulphonic acid**, chloride, amide and ethyl salt of (CLAUS and MOSER), 1878, A., 865; (MAHRENHOLTZ and GILBERT), 1880, A., 804.

m-**Sulphobenzeneazobenzene-*p*-sulphonic acid** and its salts (LIMPRICHT), 1878, A., 722; 1882, A., 516.

p-**Sulphobenzeneazobenzene-*p*-sulphonic acid** and its metallic salts and chloride (LAAR), 1880, A., 322; 1882, A., 194; (LIMPRICHT), 1882, A., 516; (JANOVSKY), 1882, A., 834.

Sulphobenzeneazodihydroxy-naphthalene, dibromo- (GRIESS), 1879, A., 317.

m-**Sulphobenzeneazo- α - and - β -naphthol** (GRIESS), 1879, A., 316.

p-**Sulphobenzeneazo- α - and - β -naphthol** (*tropaeolines*) (WITT), 1879, T., 184.

p-**Sulphobenzeneazo- β -naphthol** and its salts (V. MILLER), 1880, A., 664.

dibromo- (STEBBINS), 1880, A., 881.

p-**Sulphobenzeneazo- β -naphtholsulphonic acid** (GRIESS), 1879, A., 316.

p-**Sulphobenzeneazo-*o*-resorcinol and -salicylic acid** (GRIESS), 1879, A., 316.

m-**Sulphobenzene-*m*-azoxybenzenesulphonic acid** and its metallic salts, chloride and amide (LIMPRICHT), 1878, A., 722; (BRUNSMANN), 1880, A., 807.

Sulpho-*o*-bromazobenzolic acid. See Benzeneazobenzenesulphonic acid, dibromo-.

Sulphocarboxybenzeneazohydroxy-naphthoic acid (GRIESS), 1879, A., 317.

Sulphocarboxybenzeneazo- β -naphthol- α -disulphonic acid (GRIESS), 1882, A., 49.

Sulphotolueneazotoluenesulphonic acids and their metallic salts, chlorides and amides (NEALE), 1880, A., 806.

AZO-COMPOUNDS—

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p-**Tolueneazo- β -naphtholdisulphonic acid** (STEBBINS), 1880, A., 881.

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o-**Tolueneazo-*o*-resorcinol** (SCICHLONÉ), 1882, A., 1285.

o-**Toluene-*o*-azotoluene** (HOOGWERFF and VAN DORP), 1878, A., 973.

m-**Toluene-*m*-azotoluene** (BARSHLOWSKY), 1875, 1037; 1878, A., 300; 1881, A., 432; (GOLDSCHMIDT), 1879, A., 236.

p-**Toluene-*p*-azotoluene** (PETRIEFF), 1873, 1027; (BARSHLOWSKY), 1878, A., 300; 1879, A., 237; 1881, A., 432; (LEEDS), 1882, A., 502.

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- tetra***Bromacetyldaphnetin** (STÜNKEL), 1879, A., 469.
- Bromacetylene** (DEMOLE), 1878, A., 401.
- di***Bromacetylenedicarboxylic acid** (v. BANDROWSKI), 1880, A., 160.
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- di***Bromacetylhydrocærulignone** (HAYDICK), 1876, ii., 516.
- di***Bromacetylquercetin** (LIEBERMANN and HAMBURGER), 1879, A., 945.
- tri***Bromacetylresorcinol** (CLAASSEN), 1878, A., 868.
- di***Bromacetylrhannetin** (LIEBERMANN and HOERMANN), 1879, A., 272.
- di***Bromacetaldehyde** (HENRY), 1875, 143.
- Bromofacraldehyde**, action of sodium ethoxide on (GRIMAN and ADAM), 1881, A., 1029.
- Bromacrylic acid**. See Acrylic acid.
- Bromadipic acid**, β - and γ -*di*-, *tri*- and *tetra*- (LIMPRICHT), 1873, 623.
- di***Brom-æsculin**, and -æsculetin (LIEBERMANN and KNIETSCH), 1881, A., 108.
- Bromal** (*tribrom-*o*-acetaldehyde*), action of, on benzene (GOLDSCHMIEDT), 1874, 150. action of, on oxy-acids (WALLACH), 1877, i., 59. chloro-, and its alcoholate and hydrate (JACOBSEN and NEUMEISTER), 1882, A., 938.
- Bromalide** (WALLACH and REINCKE), 1878, A., 403.
- Bromalizarin**. See Alizarin, brom-.
- Bromallylene**. See Propargyl bromide.
- Bromallylic alcohol** (HENRY), 1881, A., 567.
- di***Bromallylic alcohol**, action of ethylic chloroformate on, in presence of sodium amalgam (KELLY), 1879, A., 305.
- α -**Bromallylic bromide**. See Propylene, $\alpha\beta$ -*di*bromo-.
- Bromalurethane** (BISCHOFF), 1874, 891.
- Bromamidoanisole**. See Bromanisidine.
- di***Bromamidoanthraquinone** (CLAUS and DIERNFELDER), 1882, A., 523.
- Bromamidobarbituric acid** (MULDER), 1881, A., 801.
- 2:1-Bromamidobenzanilide** (HÜBNER), 1878, A., 142.
- Bromamidobenzene**. See Aniline, brom-.
- Bromamidobenzenesulphonic acid**. See Anilinesulphonic acid, brom-.
- 4:3-Bromamidobenzoic acid** (HÜBNER), 1878, A., 149.
- 3:4:2 or 6-*di*-Bromamidobenzoic acid** (GREIFF), 1880, A., 648.
- Bromamidodihydrocarbostyryl**, *mono*-, and *di*- (GABRIEL and ZIMMERMANN), 1879, A., 640.
- 2:6:1-*di*-Bromamidophenol** (BÖHMER), 1882, A., 398.
- Bromamidophenylacetic acid**. See Phenylacetic acid.
- 4:3-Bromamido- β -phenylpropionic acid** (GABRIEL and ZIMMERMANN), 1881, A., 274.
- 6:2-Bromamidothymol hydrochloride** (ANDRESEN), 1881, A., 591.
- Bromamylene** (FITTIG), 1880, A., 376. action of sulphuric acid on (BOUCHARDAT), 1881, A., 1114.
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- Bromanilic acid**, chloro- (KRAUSE), 1879, A., 462.
- p-Bromanilidoacetic acid**, and its bromanilide (DENNSTEIT), 1880, A., 634.
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- Bromaniline**. See Aniline.
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- 3-Bromanisic acid**, and its derivatives (BALBIANO), 1882, A., 169; (CRESPIT), 1882, A., 191.
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- Bromanthracene**. See Anthracene, brom-.
- diBromanthrapurpurin** (PERKIN), 1873, 432.
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- Bromapophyllenic acid**, and its salts (V. GERICHEN), 1882, A., 314.
- diBromapophylline**, and its derivatives (V. GERICHEN), 1882, A., 1109.
- Bromates**. See under Bromine.
- Bromatropic acid** (FITTIG and WUESTER), 1879, A., 380.
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- Bromel'acea**, micrographical and chemical researches on the textile fibres of certain (SCHLESINGER), 1874, 87.
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- β -Bromethoxynaphthalene** (KOELLB), 1881, A., 177.
- Brom-o- and -p-ethoxynitrophenol** (WEDDIGE), 1880, A., 316.
- Bromethyl ether**. See Diethylie oxide, bromo-.
- α -Bromethylbenzene** (V. BANDROWSKI), 1875, 62.
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- ω -Bromethylbenzene**, constitution of (RADZISZEWSKI), 1874, 469.
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- Bromethylcrotonic acid**, *mono*- and *di*- (FITTIG), 1880, A., 375.
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- Bromethylenenols**, *mono*- and *tri*- (WASSERMANN), 1876, i., 707.
- diBromethylic acetate** (KESSEL), 1878, A., 133; 1879, A., 137.
- Bromethylic alcohol** (*glycol bromhydrin*) (DEMOLE), 1876, i., 692.
- Bromethylmalonic acid** (CLAUS), 1878, A., 857.
- triBrom- α -ethylnaphthalene** (CARNE-LUTTI), 1881, A., 280.
- Bromethyl- α -naphthol** (MARCHETTI), 1880, A., 260.
- triBromethylphthalimide** (MICHAEL), 1878, A., 70.
- Bromethylquinoline bromide** and its derivatives (BEREND), 1882, A., 530.
- Bromethylsulphuric acid** (BEILSTEIN and WIEGAND), 1882, A., 1179.
- diBromexcretin** (HINTERBERGER), 1873, 920.
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- 3:5:1-*d*-Bromiodo-2-toluidine** (WROBLEWSKI), 1878, A., 978.
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- p*-Bromobenzaldehyde** (JACKSON and WHITE), 1878, A., 729.
- 4-Bromobenzaldehydesulphinic acid** (BÖTTINGER), 1877, i., 468; 1878, A., 730.
- p*-Bromobenzanilide** (HÜBNER), 1878, A., 149.
- 2:4-*d*-Bromobenzanilide** (HÜBNER), 1878, A., 142.
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- p*-Bromobenzoic chloride** (HÜBNER), 1878, A., 149.
- m*-Bromobenzophenone** (KOLLARITS and MERZ), 1873, 1036.
- p*-Bromobenzylamine** (JACKSON and LOWERY), 1882, A., 170.
- o*-Bromobenzyl-compounds** (JACKSON and WHITE), 1880, A., 879.
- p*-Bromobenzyl-compounds** (JACKSON and LOWERY), 1878, A., 64; 1882, A., 170.
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- p*-Bromobenzyl alcohol** (JACKSON and LOWERY), 1878, A., 64; 1882, A., 170.
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- Bromochloral and its alcoholate and hydrate** (JACOBSEN and NEUMEISTER), 1882, A., 938.
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- Bromochromammonium salts** (JÖRGENSEN), 1882, A., 465.

- di*Bromochrysene (SCHMIDT), 1874, 987.
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- di*Bromochrysoquinone (ADLER), 1880, A., 263.
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- Bromocinnamic acids, α - and β - (BALISCH), 1880, A., 43.
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- Bromocitraconic acid (BOURGOIN), 1879, A., 457.
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- Bromocitraconic anhydride (FITTIG and KRUSEMARK), 1881, A., 416.
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- Bromocodeine, and the action of phosphorus *pentachloride* on (V. GERICHTEN), 1882, A., 312.
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- Bromocotarnine and its derivatives and chemical reactions (WRIGHT), 1877, II., 531.
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- Bromocresolsulphonic acid. See Cresolsulphonic acid.
- Bromocrotonic acid, α - and β - (MICHAEL and NORTON), 1881, A., 798.
- p*-Bromocumene (JACOBSEN), 1879, A., 624.
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- 3-Bromo-*p*-cuminic acid (V. GERICHTEN), 1879, A., 230.
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- di*Bromodecoic acid (*dibromocapric acid*) (HELL and SCHOOF), 1879, A., 521.
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- di*Bromodiallylic oxide (HENRY), 1873, 1123.
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- Bromodiazophenetol nitrate, *di*- and *tri*- (MÖHLAY and OEHMICHEN), 1882, A., 396.
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- di p*-Bromodibenzylamine (JACKSON and LOWERY), 1882, A., 170.
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- p*-Bromodihydrocarbostyryl (GABRIEL and ZIMMERMANN), 1881, A., 274.
- 2:4-*di*Bromo-1:3-dihydroxyanthraquinone (SCHÜCK and ROEMER), 1878, T., 421.
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- di*Bromodihydroxydiphenylsulphone (ANNAHEIM), 1876, II., 296.
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- di*Bromodihydroxydipropylmalonic acid, dilactone of (HELT), 1882, A., 946.
- a-di*Bromo-1:3 dimethoxybenzene (HÖNIG), 1878, A., 727; (TIEMANN and PARRISIUS), 1881, A., 270.
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- di*Bromodimethylorcinol (TIEMANN and STRENG), 1882, A., 51.
- di*Bromodimethylpyrocatechol (*dibromocatechol*) (MATSMOTO), 1878, A., 500.
- Bromodimethyl-*o*-toluidine (MICHLER and SAMPAIO), 1882, A., 177.
- Bromodimethyl-*m*-toluidine (WURSTER and RIEDEL), 1880, A., 109.
- tetra*Bromo-*p*-diphenol and its preparation and oxidation (MAGATTI), 1880, A., 613.
- tetra*Bromodiphenolcresolmethane (*tetrabromodiphenolcresolic acid*) (GRAEBE and CARO), 1876, i., 590.
- o*-Bromodiphenyl (SCHULIZ, SCHMIDT and STRASSER), 1881, A., 912.
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- di*Bromo-*as* diphenylacetamidine (DENNSTEDT), 1880, A., 634.
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- di*Bromodiphenylbutanedicarboxylic acid (GABRIEL and MICHAEL), 1878, A., 428.
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- di*Bromodiphenyltrichlor-*e*thane and -ethylene (ZEDLER), 1875, 148.
- di*Bromodiphenyleneglycollic acid (FRIEDLANDER), 1877, ii., 493.
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- ω -*tri*Bromo-*as*-diphenylethane and ω -*di*Bromo-*as*-diphenylethylene (GOLDSCHMIEDT), 1874, 150.
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- Bromo-*s*-diphenylhydrazinedi-*m*-sulphonic acids, *di-* and *tetra-*, and their salts, and diazo-compounds (JORDAN), 1880, A., 808.
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- ω -*di*Bromodiphenylmethane (FRIEDEL and BALSCHN), 1880, A., 558.
- tri*Bromodiphenylmethylaniline (GNEHM), 1876, i., 83.
- p*-Bromodiphenylthiocarbamide (DENNSTEDT), 1880, A., 634.
- Bromodipthalyl (ADOR), 1873, 68.
- Bromodipropylresorcinol (KARLOF), 1881, A., 269.
- tetra*Bromodiresorcinol (BENEDIKT), 1879, A., 55, 465.
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- di*Bromoditolyltrichlorethane (FISCHER), 1875, 154.
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- α -*di*Bromofluorene (BARBIER), 1873, 1226; 1877, i., 70.
- β -*di*Bromofluorene (FITTIG and SCHMITZ), 1879, A., 164.
- tetra*Bromofluorescein. See Eosin.
- Bromofluoresceincarboxylic acid, *di-* and *tetra-* (SCHREDER), 1879, A., 56.
- Bromoform (*tribromomethane*) (SCHMIDT), 1877, ii., 293; (BENEDIKT), 1878, A., 499; (BOURGOIN), 1881, A., 155.
- formation of (RICE), 1877, ii., 423.
- preparation of (DAMOISEAU), 1881, A., 238.
- physical properties of (THORPE), 1880, T., 201.
- action of alcoholic potash on (LONG), 1879, A., 126.
- action of the copper-zinc couple on (GLADSTONE and TRIEB), 1875, 510.
- formation of carbon *tetra*bromide from (HABERMANN), 1873, 865, 1013.

- Bromoform** (*tribromomethane*), testing of bromine for (REYMANN), 1875, 1288.
chloro- (JACOBSEN and NEUMEISTER), 1882, A., 938.
- Bromofumamide** (v. HOFMANN), 1882, A., 1052.
- p*-Bromoformanilide** (DENNSTEDT), 1880, A., 634.
- Bromofumaric acid** (*isobromomaleic acid*) (ANSCHÜTZ), 1878, A., 137.
- di*-Bromofumaric acid**, formation of, by the action of bromine on mucobromic acid (LIMPRICHT), 1873, 625.
- Bromofumarimide** (KISTELIŃSKI), 1878, A., 43.
- Bromofuril**, *mono*- and *di*- (FISCHER), 1880, A., 798; 1882, A., 499.
- di*-Bromogallein** (v. BUCHKA), 1882, A., 61.
- tri*-Bromoglyoxaline** (WYSS), 1878, A., 24.
- di*-Bromohexamethoxydiphenyl** (EWALD), 1879, A., 253.
- Bromohexane**, *di*-, *hepta*- and *octo*-. See Hexane, bromo-.
- Bromohexenoic acid** (*bromohydrosorbic acid*) (FITTIG), 1880, A., 377.
- di*-Bromohexenoic acid** (KACHEL and FITTIG), 1874, 44.
- Bromo *n*-hexoic acid** (*bromocaproic acid*). See *n*-Hexoic acid.
- octo*-Bromohexonene** (MERZ and WEITH), 1877, ii., 867.
- Bromohexylene**. See Hexylene.
- Bromohomofluorescein**, *tetra*-, and *hepta*- (SCHWARZ), 1880, A., 552.
- Bromohydrocœrulignone**, *di*- and *tetra*- (HAYDUCK), 1876, ii., 516.
- Bromohydrocotarnine**, preparation of (WRIGHT), 1877, ii., 529.
- tri*-Bromohydrocotarnine hydrobromide**, preparation and chemical reactions of (WRIGHT), 1877, ii., 532.
- Bromohydrocotoin**, *mono*- and *di*- (v. JOEST and HESSE), 1877, ii., 202; 1880, A., 328.
- tetra*-Bromohydrocyanosolic acid** (GRAEBE and CARO), 1876, i., 591.
- di*-Bromohydromalonylcarbamide** (GRIMAUX), 1876, i., 70.
- Bromohydromuconic acid** (LIMPRICHT), 1873, 622.
- di*-Bromohydropiperic acid** (FITTIG and MIELCK), 1874, 900.
- di*-Bromohydroxyanthraquinone** (v. BAAYER), 1877, i., 308; 1880, A., 658.
- 3-Bromo-*p*-hydroxybenzaldehyde** (HERZFELD), 1878, A., 423.
- tetra*-Bromo-*o*- and -*p*-hydroxybenzene-*o*- and -*p*-azophenol** (WISSELSKY and BENEDIKT), 1878, A., 498; 1879, A., 718.
- Bromohydroxy- β -butyric acid** (ERLENMEYER and MÜLLER), 1882, A., 598.
- Bromohydroxydiphenyl oxide** (*bromophenylphenyl ether*) (LOHMER), 1882, A., 398.
- 4-Bromo-3-hydroxy-2-methylanthraquinone** (FRAUDE), 1879, A., 635.
- 3-Bromo-2-hydroxy- α -naphthaquinone** (DIEHL and MERZ), 1878, A., 322, 736.
- Bromohydroxynaphthaquinonesulphonic acid**, potassium salt of (ARMSTRONG and GRAHAM), 1881, T., 138.
- Bromohydroxyoctoic acid**, *mono*- and *tri*-, lactone of (HELT), 1882, A., 946.
- di*-Bromo- α -hydroxy- α -phenylpropionic acid** (BÖTTINGER), 1881, A., 814.
- Bromohydroxypiperide**, *mono*- and *di*-, and ***tetra*-bromohydroxypiperhydronic acid** (FITTIG and MIELCK), 1874, 898.
- di*- β -Bromo- α -hydroxy- α -tolylpropionic acid** (*dibromomethyltolalacetic acid*) (BÖTTINGER), 1881, A., 1036.
- β -Bromolactic acid** (MELIKOFF), 1880, A., 800.
- tri*-Bromolactic acid** (WALLACH and REINCKE), 1878, A., 403.
- hepta*-Bromolactomaluryl** (GRIMAUX), 1876, i., 69.
- Bromoleucotin**, *di*- and *tri*- (v. JOEST and HESSE), 1880, A., 326.
- Bromomaleic acid** (PETRI), 1879, A., 373; (v. BANDROWSKI), 1879, A., 524.
- iso*-Bromomaleic acid**. See Bromomaleic acid.
- Bromomaleic anhydride** (ANSCHÜTZ), 1878, A., 136.
- Bromomalonic acid** (PINNER), 1876, i., 65; (PETRIEFF), 1878, A., 490.
- di*-Bromomalonic acid** (PETRIEFF), 1874, 787.
- Bromomesitol**, *mono*- and *di*- (JACOBSEN), 1879, A., 529.
- Bromomesitylenic acids**, α - and β -, and their salts (SCHMITZ), 1879, A., 156.
- di*-Bromomethane**. See Methylenic bromide.
- tri*-Bromomethane**. See Bromoform.
- tetra*-Bromomethane**. See Carbon *tetra*-bromide.
- di*-Bromo-*o*- β -methoxyphenyl-angelic and -crotonic acids**, and their *di*-bromides (PERRIN), 1881, T., 134.

- tetra*Bromo-*o*-methoxyphenyl-butyric and -valeric acids (PERKIN), 1881, T., 131.
- di*Bromo-3-methoxy-*p*-toluic acid (PATERNO and CANZONERI), 1880, A., 884.
- heco*Bromomethyl ethyl ketone (DEMOLE), 1879, A., 220.
- Bromomethylacrylic acid, action of potash on (FRIEDRICH), 1881, A., 413.
- metallie salts of (MORAWSKI), 1878, A., 213.
- iso*Bromomethylacrylic acid (FITTIG and KRUSEMARK), 1881, A., 416.
- p*-Bromomethylaniline, and its nitrosamine (WURSTER and SCHEIBE), 1880, A., 107.
- di*Bromo-2-methylantracene (FISCHER), 1875, 155.
- tetra*Bromomethylaurin (ZULKOWSKI), 1882, A., 1291.
- Bromomethyl-*o*-coumaric acid, and its decomposition by alkalis (PERKIN), 1881, T., 423.
- Bromomethylcoumarin, β -*mono*- and β -*di*- (PERKIN), 1875, 12.
- Bromomethylenephthalide (GABRIEL and MICHAEL), 1878, A., 734.
- Bromomethyleugenol and its *di*bromide (WASSERMANN), 1879, A., 790.
- di*Bromomethylorcinol (*di*bromomethyl-*o*-methoxyphenylbenzene) (TIEMANN and STENG), 1882, A., 52.
- tri*Bromomethylresorcinol (*tribromo*-hydroxy-methoxyphenylbenzene) (TIEMANN and PARRISIUS), 1881, A., 270.
- Bromomethylsuccinic acid. See Methylsuccinic acid.
- citra*Bromomethylsuccinic anhydride (BOURGOIS), 1878, A., 30.
- ita**di*Bromomethylsuccinic anhydride (PETRI), 1881, A., 1032.
- Bromomethyltarconic acid, and its salts (V. GERICHEN), 1882, A., 869.
- 6-Bromomethylthymol (PATERNO and CANZONERI), 1880, A., 884.
- Bromomucic acid. See Mucobromic acid.
- Bromomucobromic acid (JACKSON and HILL), 1879, A., 224.
- Bromonaphthalene. See Naphthalene.
- 1-Bromonaphthalene-4-sulphonic acid (MELDOLA), 1880, A., 260.
- Bromonaphthalic acid. See 3-Bromo-2-hydroxy- α -naphthaquinone.
- 2:3-*di*Bromo- α -naphthaquinone (DIEHL and MERZ), 1878, A., 736.
- Bromo- α - and β -naphthoic acid, *mono*-, *tri*- and *tetra*- (HAUSAMANN), 1877, i., 318.
- Bromonaphthol. See Naphthol.
- Bromo- β -naphtholsulphonic acid, *mono*- and *di*-, calcium and potassium salts of (ARMSTRONG and GRAHAM), 1881, T., 137.
- 2:1-*di*Bromo- α -naphthylamine (MELDOLA), 1880, A., 260.
- 1-Bromo- β -naphthylamine (COSINER), 1881, A., 606.
- di*Bromonicotine (LAIBLIN), 1880, A., 897.
- tetra*Bromonicotine (CAHOUS and ETARD), 1880, A., 815; (GRIMAU), 1882, A., 1215.
- Bromonitracetanilide, 4:2-*mono*-, 4:6:2-*di*- and 2:4:6:3-*tri*- (REMMERS), 1874, 696.
- ω -Bromo-*m*-nitracetophenone (HUNNIGS), 1878, A., 147.
- Bromonitraniline. See Aniline.
- Bromonitranisole. See Anisole.
- di*Bromonitramidoanthraquinone (CLAUS and DIERNFELNER), 1882, A., 524.
- Bromonitranthraquinone. See Anthraquinone.
- p*-*di*Bromonitrazobenzene (WERIGO), 1873, 384.
- Bromonitrethane. See Ethane.
- di*Bromonitrethylene (MERZ and ZETTER), 1880, A., 114.
- di*Bromodinitrimidophenolphthalein (V. BAEYER and BURKHARDT), 1878, A., 866.
- Bromo-*o*-nitrobenzaloxime (GABRIEL and MEYER), 1881, A., 730.
- Bromonitrobenzanilide. See Benzanilide.
- Bromonitrobenzene. See Benzene.
- Bromonitrobenzenesulphonic acid. See Benzenesulphonic acid.
- Bromonitrobenzoic acid. See Benzoic acid.
- Bromonitro-*p*-benzylphenol, and the action of nitric acid on (RENNIE), 1882, T., 223.
- Bromonitrobutane. See Butane.
- Bromonitrocarnphor (SCHIFF), 1880, A., 891; 1881, A., 438.
- tri*Bromo/nitrochrysene (ADLER), 1880, A., 263.
- Bromo-*p*-nitrocinnamic acid, α - and β - (MÜLLER), 1882, A., 842.
- di*Bromonitrocinnamic acid (V. BAEYER), 1881, A., 274.
- di*Bromonitro-*p*-cresol (KNECHT), 1882, A., 969.
- Bromonitrocymenes. See Cymene.
- 2:4:6-*tri*Bromo-3-nitrodiaetanilide (REMMERS), 1874, 696.
- p*-Bromo-*p*-nitrodiphenyl (SCHULTZ), 1874, 468; 1875, 149.

- iso*Bromonitrodiphenyl (SCHULTZ), 1875, 149; SCHULTZ, SCHMIDT and STRASSER), 1881, A., 911.
- p*-Bromo-2:4-dinitrodiphenylamine (*p*-bromophenyl-2:4-dinitroaniline) WILLGERODT), 1878, A., 570.
- tri*Bromo-*tri*nitrodiphenylamine (GHEHM and WYSS), 1878, A., 53.
- di*Bromotetra-nitrodiphenylamine (GHEHM), 1876, i., 83.
- di*Bromo-*di*nitrodiphenyl-*tri*chloroethane (ZEIDLER), 1875, 148.
- Bromo-*di*nitrodiphenylmethanamine (LEYMANN), 1882, A., 1057.
- 4:6:2-*di*Bromonitrohydroxyethoxybenzene (WESELSKY and BENEDIKT), 1881, A., 727.
- di*Bromonitromethane and *tri*bromonitromethane (*bromopierin*) (TCHERNIAC), 1876, i., 901.
- di*Bromo-*di*nitromethane and its alkali salts (LOSANITICH), 1882, A., 955.
- Bromonitronaphthalene. See Naphthalene.
- 4:2-Bromonitro- α -naphthol (BIEDERMANN and REMMERS), 1874, 802.
- 4:2-Bromonitro- α -naphthylamine (LIEBERMANN), 1877, i., 606.
- Bromonitrophenanthrene (ANSCHÜTZ), 1878, A., 984.
- ω -Bromo-*o*- and -*p*-nitrophenetol (WEDDIGE), 1880, A., 316.
- Bromonitrophenetols, 4:2- and 2:1- (HALLOCK), 1881, A., 595.
- Bromonitrophenols. See Phenol.
- 6:4-Bromonitrophenol-2-sulphonic acid (POST and BRACKERFSCH), 1874, 476.
- Bromonitrophenolsulphonic acids (ARMSTRONG and BROWN), 1874, 1164.
- Bromonitrophenylacetic acid. See Phenylacetic acid.
- 5:2-Bromonitro-*m*- and -*p*-phenylenediamines (KÖRNER), 1876, i., 225.
- p*-Bromo-*o*- and -*m*-nitro- β -phenylpropionic acid (GABRIEL and ZIMMERMANN), 1881, A., 274.
- $\alpha\beta$ -*di*Bromo-*p*-nitro- β -phenylpropionic acid and its salts (DREWSSEN), 1882, A., 846.
- Bromonitropropane, α - and β -*mono*- and *di*- (MEYER and TCHERNIAC), 1876, i., 901.
- tri*Bromo-*di*nitropropionic acid (BENEDIKT), 1877, ii., 193.
- di*(Bromonitrorescinol (WESELSKY), 1874, 694.
- 4:6:2-*di*Bromonitroresorcinol (WESELSKY and BENEDIKT), 1881, A., 727.
- Bromonitrotoluene. See Toluene.
- Bromonitrotoluenesulphonic acid. See Toluenesulphonic acid.
- Bromonitrotoluidine. See Toluidine.
- Bromopentane. See Pentane.
- Bromophenanthrene. See Phenanthrene.
- Bromophenanthrenesulphonic acid, salts of (ANSCHÜTZ and v. SIEMENSKE), 1880, A., 891.
- Bromophenol. See Phenol.
- Bromophenolphthalein. See Phenolphthalein.
- Bromophenolphthalidein, *mono*- and *tetra*-, and their derivatives, *tetra*-bromophenol-phthalidin and -phthalin (v. BAeyer), 1880, A., 655.
- tetra*Bromophenolphthalidin, action of ammonia on (v. BAeyer and BURKHARDT), 1880, A., 657.
- hexa*Bromophenoquinone (BENEDIKT), 1880, A., 246.
- Bromophenoxyacetic acid (FRITZSCHE), 1880, A., 320.
- Bromophenoxypropionic acid (SAARBACH), 1879, A., 612; 1880, A., 393.
- p*-Bromophenyl mercaptan (BAUMANN and PREUSSEL), 1879, A., 803; 1882, A., 757.
- Bromophenylacetic acid. See Phenylacetic acid.
- ω Bromophenylacetonitrile (REIMER), 1882, A., 170.
- Bromo- β -phenylbutylene and its *di*-bromide (PERKIN), 1879, T., 139.
- p*-Bromophenylcarbylamine *dichloride* (DENNSTEDT), 1880, A., 634.
- Bromophenylcystein (BAUMANN and PREUSSEL), 1882, A., 756.
- Bromophenyleneacetamidine (REMMERS), 1874, 696.
- Bromophenylenediaminesulphonic acid, *mono*- and *di*- (LIMPRICHT), 1878, A., 497.
- di*Bromophenylenedioxyacetic acid (GABRIEL), 1880, A., 33.
- di*Bromophenylene- α -naphthylene oxide (v. ARX), 1881, A., 282.
- Bromophenyl *isocyanate*, *p*- and *bis*- (DENNSTEDT), 1880, A., 633.
- α -Bromophenyl- β -lactic acid (ERLENMEYER), 1880, A., 472.
- Bromophenylmercapturic acid. See Phenylmercapturic acid.
- Bromophenyl- α - and - β -naphthylamine, *di*- and *tri*- (STREIFF), 1881, A., 176.
- di*Bromophenyloxethylenecarbamide. See *p*-Bromanilidoacetic acid, bromanilide of.
- p*-Bromophenylphthalimide (GABRIEL), 1879, A., 323.
- Bromo- α - and - β -phenylpropionic acid. See α - and β -Phenylpropionic acid.

- Bromophenylthio-carbamide and -carbimide (DENNSTEDT), 1880, A., 633.
- Bromophenylthiourethane (*ethyl p-bromophenylthiocarbamate*) (DENNSTEDT), 1880, A., 634.
- tri*Bromophloroglucinol, action of nitric acid on (BENEDIKT), 1877, ii., 193.
- 3-Bromophthalic anhydride (SMITH), 1879, T., 792.
- di*Bromopicene (BURG), 1881, A., 179.
- Bromopiricin. See Methane, *tribromo*-nitro-.
- tetra*Bromopiperhydronic acid and *di*-bromopiperide (FITTING and MIELCK), 1874, 897.
- Bromoplatinites. See Platinosobromides under Platinum.
- $\alpha\beta$ -*di*Bromopropaldehyde (GRIMAU and ADAM), 1881, A., 1029.
- Bromopropane. See Propylie bromide.
- di*Bromopropane. See Propane.
- Bromopropiolic acid (JACKSON and HILL), 1879, A., 225; (HILL), 1879, A., 616.
- Bromopropionic acid. See Propionic acid.
- α -Bromopropionic bromide, action of zinc methyl on (KASCHIRSKY), 1879, A., 46; 1882, A., 36.
- Bromopropylene. See Propylene.
- s-di*Bromoisopropylie alcohol. See Glyceryl dibromhydrin.
- Bromopurpurin (SCHUNCK and ROEMER), 1877, i., 673; ii., 625; (LIEBERMANN and PLATH), 1878, A., 78; (ANON.), 1878, A., 737.
- 2,4-*di*Bromopurpuroxanthin (SCHUNCK and ROEMER), 1878, T., 424.
- Bromopyridine. See Pyridine.
- tetra*Bromopyrocatechol and *tri*bromopyrogallol, action of bromine on, in presence of water (STENHOUSE), 1874, 586; 1875, 1.
- Bromopyrocoll, *mono*- and *di*-. (CIAMICIAN and DANESI), 1882, A., 234.
- tri*Bromopyroguaiacol (WIESER), 1881, A., 813.
- Bromopyromucic acid. See Pyromucic acid.
- Bromopyrotartaric acid. See Methylsuccinic acid, bromo-.
- di*Bromopyroxanthin and its *tetra*bromide (HILL), 1878, A., 517; 1882, A., 307.
- Bromopyruvic acid, *di*- and *his*-. (GRIMAU), 1874, 887.
- di*Bromopyruvic acid, action of benzene on (BÖTTINGER), 1881, A., 814.
- di*Bromoquercetin and *tetra*bromoquercetin (LIEBERMANN and HAMBURGER), 1879, A., 945.
- Bromoquinol. See Quinol.
- Bromoquinoline. See Quinoline.
- penta*Bromoquinolphthalein (EKSTRAND), 1878, A., 676.
- Bromoquinone. See Quinone.
- penta*Bromorcinol (LIEBERMANN and DITTLER), 1874, 62; (CLAASSEN), 1878, A., 867.
- tri*Bromoresoquinone, reduction of (BENEDIKT), 1879, A., 55.
- Bromoresorcinol. See Resorcinol.
- tetra*Bromoresorcinolbenzein (DOEBNER), 1880, A., 644.
- penta*Bromoresorcinoloxalein (CLAUS), 1882, A., 399.
- 3:5-*di*Bromoresorcinolphthalein (v. BAEYER), 1877, i., 204.
- Bromoretene, *di*- and *tetra*-. (EKSTRAND), 1877, ii., 497.
- di*Bromorhamnetin (LIEBERMANN and HOERMANN), 1879, A., 272.
- tetra*Bromorosolic acid (GRAEBE and CARO), 1876, i., 590.
- Bromo-*p*-rosolic acid, hydrobromide of (ZULKOWSKI), 1882, A., 1290.
- tetra*Bromo-*p*-rosolic acid (DALE and SCHORLEMMER), 1879, T., 152.
- Bromorosquinone (v. BAEYER and SCHRAUBE), 1878, A., 869.
- Bromosalicylanilide (HAARMANN), 1873, 907.
- 3:5-*di*Bromosalicylic acid (HÜBNER), 1878, A., 148.
- Bromo-*m* santonin, *mono*- and *di*-. (CANIZZARO and CARNELUTTI), 1879, A., 330; 1881, A., 285.
- Bromosilicodene (PAPE), 1882, A., 154.
- Bromostyrene. See Styrene.
- Bromosuberlic acid, *mono*- and *di*-. (GANTTER and HELL), 1882, A., 716.
- Bromosuccinic acid. See Succinic acid.
- Bromosuccinic anhydride (ANSCHÜTZ and BENNETT), 1882, A., 828.
- isol*iBromosuccinic anhydride (PICTET), 1881, A., 253.
- tetra*Bromosuccinylfluorescein (NENCKI and SIEBER), 1881, A., 592.
- p*-Bromo- α -sulphamidobenzoic acid (BÖTTINGER), 1878, A., 730.
- di*Bromosulphobenzeneazodihydroxynaphthalene (GRIESS), 1879, A., 317.
- di*Bromosulphobenzeneazo- β -naphthol (STEBBINS), 1880, A., 881.
- Bromosulphobenzoic acid. See Sulphobenzoic acid.
- Bromosulphonic acid, attempts to prepare (CLAUSNER), 1879, A., 354.
- p*-Bromo-*m*-sulpho- β -phenylpropionic acid and its salts (GÖRING), 1878, A., 318.

- Bromotarconine.** See Tarconine under Alkaloids.
- Bromoterephthalic acid and chloride** (FISCHLI), 1879, A., 639.
- 2:5-*di*Bromoterephthalic acid**, and its salts (CLAUS and WIMMEL), 1880, A., 632.
- β*-*di*Bromotetrahydroquinoline** and its salts (CLAUS and ISTEIN), 1882, A., 1110.
- Bromothiocarbamide** (CLAUS), 1876, i., 572.
- p*-Bromothioformanilide** (DENNSTEDT), 1880, A., 634.
- di*Bromothiohydantoin** (KRAMPF), 1880, A., 631.
- 3-Bromothiohydroxybenzoic acid** (FREICHS), 1874, 990.
- 6-Bromothymol**, methyl ether of (PATERNO and CANZONERI), 1880, A., 881.
- 6-Bromothymoquinol diacetate** (SCHULZ), 1882, A., 838.
- di*Bromothymoquinone** (ANDRESEN), 1881, A., 591.
- Bromotoluene.** See Toluene.
- Bromotoluenesulphonic acid.** See Toluenesulphonic acid.
- Bromotoluic acids, *m*- and *p*-.** See *m*- and *p*-Toluic acids.
- Bromotoluidine** See Toluidine.
- Bromotoluidinesulphonic acid.** See Toluidinesulphonic acid.
- o*-Bromotolyl mercaptan** (HÜBNER and POST), 1874, 59.
- Bromotolylene-2:4-diamine** (RUHEMANN), 1882, A., 392.
- Bromotolylene 2:6-diamine-4-sulphonic acid** (SCHWANERT), 1877, ii., 472.
- tri-p*-Bromotribenzylamine** (JACKSON and LOWERY), 1882, A., 170.
- Bromotrihydroxyquinone** (MERZ and ZETTER), 1880, A., 114.
- Bromovaleric acid.** See Valeric acid.
- Bromovalerolactone** (FITTIG and MESSERSCHMIDT), 1882, A., 35.
- Bromo-vanillic and -veratric acids and *di*bromoveratrol** (MATSUMOTO), 1878, A., 502.
- Bromovanillin** (TIEMANN and HAARMANN), 1874, 896.
- di*Bromo-*o*-vinylanisole** (PERKIN), 1881, T., 418.
- Bromoxaform.** See Acetone, *peroxy*-brom-.
- Bromoxylene.** See Xylene.
- 4-Bromo-*m*-xylene-2-sulphonamide**, and 4:6-*di*brom-*m*-xylene-2-sulphonic acid (JACOBSEN and WEINBERG), 1879, A., 61.
- 5-Bromo-*m*-xylene-4-sulphonic acid**, and its salts and amide (WEINBERG), 1878, A., 724.
- tri*Bromo-1:2:4-xyleneol, mono-, *di*-, and *tri*-bromo-1:3:4-xyleneol**, and *mono*- and *tri*-bromo-1:4:2-xyleneol (JACOBSEN), 1878, A., 411.
- Bromoxyleucotin, mono-, and *di*-** (v. JOEST and HESSE), 1880, A., 327.
- 1:6-*di*Bromo-*m*-xylo 2:5-quinone** (JACOBSEN), 1879, A., 530.
- di*Bromo-*p*-xylo 2:5-quinone** (CARSTANJEN), 1882, A., 612.
- sesqui*Bromoxysacchulimide** (SESTINI), 1882, A., 1182.
- Bromozanzaloin** (TILDEN), 1875, 1270.
- Bronze** articles, method of finishing (DIETLEN), 1876, ii., 227.
- bar, and Egyptian figures and book, composition of (FLIGHT), 1882, T., 111.
- money, analysis of (BUSSE), 1878, A., 311.
- monuments, exposed, preservation of (BRÜHL), 1882, A., 669.
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- antique, composition of an (REICHARDT), 1873, 1201.
- Chinese and Japanese, of unusually deep colour (MORIN), 1874, 927.
- Japanese (MAUMENÉ), 1875, 790.
- Cypriote, Romano-British, Greek and Roman, composition of (FLIGHT), 1882, T., 144.
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- tungsten- (PHILIPP and SCHWEBEL), 1880, A., 157; (PHILIPP), 1882, A., 930.
- Bronzes**, formation of patina on (WEBER), 1882, A., 1334.
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- Bronzite** from Dun Mountain, near Nelson, New Zealand (HILGER), 1880, A., 857.
- Brookite** (v. LASAULX), 1881, A., 236.
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- 1:2-Dihydroxyanthraquinonecarb-oxylic acid** (HAMMERSCHLAG), 1878, A., 323.
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- sius), 1881, A., 270; (FAHLBERG), 1881, A., 818; (MILLER), 1882, T., 409; (ZEHESTER), 1882, A., 193.
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- Diphenylmethylphosphine** (MICHAELIS and LINK), 1882, A., 306.
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- o*-Ethylamidophenol nitronitrosamine** (FÖRSTER), 1880, A., 164.
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- Hederic** and **hederatannic acids** (v. HARTSEN), 1876, i., 613; (VERNET), 1881, A., 410.
- Hedyphane** containing baryta, from Långban (LINDSTRÖM), 1881, A., 531.
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- Helicin** (SCHIFF), 1882, A., 303, 412.
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- Hemipinic acid**, derivatives and constitution of (WEGSCHEIDER), 1882, A., 1206.

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- n-Heptoic acid** (*heptylic acid*; *ananthic acid*) and its salts (SCHORLEMMER), 1873, 617; (GRIMSHAW and SCHORLEMMER), 1873, 1073; (LIEBEN and JANEČEK), 1877, ii., 879; (CAHOUES and DEMARÇAY), 1879, A., 1037.
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- n-Heptoic anhydride and amide** (MEHLIS), 1878, A., 135.
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- Heptylamine** (*enanthyglumine*) (v. HOFMANN), 1882, A., 1054.
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- n*-Heptylic alcohol and its derivatives (GRIMSHAW and SCHORLEMMER), 1873, 1081; (CROSS), 1877, ii., 123.
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- Hexadecylic alcohol (*ethyl: cetylic alcohol*), action of phosphorus pentoxide on (MARKOWNIKOFF), 1874, 141.
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- α -Hexahydroxydiphenyl** (*dipyrogallol*) (LIEBERMANN), 1873, 1033.
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- Hexenoic acid** (*α -ethylcrotonic acid*) (PETRIEFF), 1874, 41; (WALDSCHMIDT), 1878, A., 136; (FITTIG), 1880, A., 375.
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- n-Hexoic aldehyde** (*caproic aldehyde*) (LIEBEN and JANEČEK), 1877, ii., 880.
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- n-Hexylamine** (V. HOFMANN), 1882, A., 1054.
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- n*-Hexylic alcohol, heptylic acid from (FRANCHIMONT), 1873, 55.
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- Homocerebrin** (PARCUS), 1882, A., 235.
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- "**Homocreatin**," formation of (LINDENBERG), 1876, i., 700.
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- Homohydrapatropine** and its salts (PESCI), 1882, A., 1218.
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- Homopyrocatechol** (3:4-*dihydroxytoluene*) (NEVILE and WINTHER), 1882, T., 126.
- α -Homoprotocatechuic acid** (3:4-*dihydroxyphenylacetic acid*) (TIEMANN and NAGAI), 1877, ii., 310.
- Homopyrrole.** See Methylpyrroline.
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- α -Hydroxyethoxybenzophenone** (STAEDEL and GAIL), 1879, A., 325.
- 2-Hydroxy-5-ethoxybenzylic alcohol** (*ethoxysaligenin*) (HANTZSCH), 1881, A., 167.
- Hydroxyethoxy-mono- and -di-methylethylamines** (MORLEY), 1880, T., 232.
- Hydroxyethylamine hydrochloride**, mercury derivative of (KÖHLER), 1880, A., 159.
- Hydroxyethylaniline** (*urethenaniline*) (DEMOLE), 1874, 77.
- β -Hydroxy- α -ethylbutyric acid** (WILGENT, EHRLICH and ROHRBECK), 1876, i., 369; (WALDSCHMIDT), 1878, A., 136.

- Hydroxyethylcarbostyryl** (FRIEDLÄNDER and OSTERMAIER), 1882, A., 202.
- Hydroxyethylconiine** (*conylethylalkine*) (LADENBURG), 1882, A., 166.
- Hydroxyethyldiallylamine** (*diallyl-ethylalkamine*) (LADENBURG), 1881, A., 1158.
- Hydroxyethyldimethylamine** (*dimethyl-ethylalkine*) (LADENBURG), 1882, A., 166.
- Hydroxyethylenealdehydine** (*hydroxy-ethylene-2-methyl-5-ethylpyridine*), platinumchloride of (WURTZ), 1882, A., 1303.
- Hydroxyethylene- α -collidine** (*hydroxy-ethylene-3-methyl-2-ethylpyridine*), platinumchloride of (WURTZ), 1882, A., 1303.
- Hydroxyethylene-*o*-phenylamine** (WEDDIGE), 1881, A., 1138.
- Hydroxyethylenequinoline hydrochloride** (WURTZ), 1882, A., 1303.
- Hydroxyethylidenesuccinic acid.** See Methyltartronic acid.
- α -Hydroxyethylmalonic acid.** See Ethyltartronic acid.
- Hydroxyethylmethylacetic acid.** See α -Hydroxyvaleric acid.
- Hydroxyethylpiperidine** (*piperethylalkine*) (LADENBURG), 1881, A., 1157.
- iodide (LADENBURG), 1882, A., 1194.
- Hydroxyethyltheobromine** (FISCHER), 1882, A., 629.
- Hydroxyethyl-*p*-toluidine** (DEMOLE), 1874, 903.
- Hydroxyfurfuraniline** (SCHIFF), 1880, A., 391.
- α -Hydroxyglutaric acid** (*glutanic acid*), and its isomerides (MARKOWNIKOFF), 1877, i., 63.
- occurrence of, in molasses (v. LIPPMANN), 1882, A., 1190.
- α -Hydroxyheptico acid**, and its derivatives (HELMs), 1876, i., 371.
- identity of Helms' with Ley's acid (POPOFF and WASSILIEFF), 1877, ii., 882.
- β -Hydroxyheptico acid** (*β -diethyl-ethylenelactic acid*) (SCHIROKOFF), 1880, A., 382.
- (*α -methyl-ethyl- β -hydroxybutyric acid*) (SAUR), 1878, A., 27.
- γ -Hydroxyheptico acid**, and its salts and lactone (FITTIG and KRAFFT), 1882, A., 42; (ANTHOR), 1882, A., 45.
- Hydroxyhexenoic acid** (*hydroxyhydro-sorbic acid*) (FITTIG), 1880, A., 378.
- α -Hydroxyhexoic acid** (*hydroxyisobutyl-acetic acid*) (CONRAD and BISCHOFF), 1880, A., 629; (CONRAD), 1881, A., 577.
- (*hydroxydiethylacetic acid*) (FREYTAG), 1880, A., 312; (TIEMANN and FRIEDLANDER), 1882, A., 56.
- γ -Hydroxyhexoic acid**, internal anhydride of (FITTIG), 1880, A., 378.
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- γ -Hydroxyisohexoic acid**, and some of its salts (FITTIG), 1880, A., 377; (FITTIG and BREDT), 1882, A., 34.
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- Hydroxyhexoic acids**, lactones of (HJELT), 1882, A., 916.
- α -Hydroxyhexonitrile** (ERLENMEYER and SIGEL), 1875, 145.
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- p*-**Hydroxylophine**. See *p*-Hydroxy-triphenylglyoxaline.
- Hydro-xyloquinone**. See Xyloquinol.
- Hydroxyphthalamic acid**. See Phthalohydroxylamine.
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- o*-**Hydroxymandelic acid** (*salicylglycollic acid*), and its anhydride (PÖCHL), 1882, A., 515.
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- o*-**Hydroxymesitylenic acid** and its salts (JACOBSEN), 1879, A., 530; 1881, A., 599.
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- p*-**Hydroxymesitylenic acid** (JACOBSEN), 1879, A., 643.
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- Hydroxymethenylamidophenyl mercaptan** (v. HOFMANN), 1879, A., 805.
- Hydroxymethoxyanthraquinone** (*methylalizarin*) (SCHUNCK), 1873, 900.
- 2-Hydroxy-3-methoxybenzaldehyde** (TIEMANN and KOPPE), 1882, A., 55.
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- p*-**Hydroxymethoxybenzene** (*methyl-quinol*) (TIEMANN and MÜLLER), 1882, A., 52.
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- 2-Hydroxy-4-methoxybenzoic acid** (*μ -methoxysalicylic acid*) (TIEMANN and PARRISIUS), 1881, A., 271.
- 2-Hydroxy-5-methoxybenzoic acid** (*m -methoxysalicylic acid*) (TIEMANN and MÜLLER), 1882, A., 53.
- 3-Hydroxy-4-methoxybenzoic acid**. See *iso*Vanillic acid.
- 4-Hydroxy-2-methoxybenzoic acid** (TIEMANN and PARRISIUS), 1881, A., 271.
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- Hydroxymethoxycinnamic acid**. See Ferulic acid.
- Hydroxymethoxymethylbenzene**. See Methylorcinol.
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- 4-Hydroxy-3-methoxytoluic acid** and its derivatives (TIEMANN and NAGAI), 1877, ii., 339.
- Hydroxymethylanthraquinone** (DREWSEN), 1882, A., 1100.
- 3-Hydroxy-2-methylanthraquinone** and *4-bromo-* (FRAUDE), 1879, A., 635.
- β -Hydroxy- α -methylbutyric acid** (*hydroxyglutaric acid*) (WISLIGENUS, EHRLICH and ROHRBECK), 1876, i., 369; (ROHRBECK), 1878, A., 136.
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- α -Hydroxy- α -methylglutaric acid** and its salts (FITTIG and BREDT), 1882, A., 34.
- β -Hydroxy- β -methylglutaric acid**, formation of, from methylallyl-carbinol (SOROKIN), 1880, A., 383; 1881, A., 414.
- m -Hydroxymethyl- p -hydroxybenzoic acid** (*o -oxymethylhydroxydicarboxylic acid*) (REIMER), 1878, A., 881.
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- 2-Hydroxy- α -naphthaldehyde**, and its derivatives (KAUFFMANN), 1882, A., 1068.
- β -Hydroxynaphthaleneazonaphthalene-sulphonic acid**. See under Azo.
- Hydroxynaphthaquinone** (ELSBACH), 1882, A., 854.
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- 2-Hydroxy- α -naphthaquinone (*naphthalic acid*, $C_{10}H_5(OH)_2$), 3-nitro- (DIEHL and MERZ), 1878, A., 322, 388.
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- 2-Hydroxy- α -naphthoic acid, and its salts (KAUFFMANN), 1882, A., 1068. action of diazosulphobenzoic acid on (GRIESS), 1879, A., 317.
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- β -Hydroxynonoic acid (*β -dipropylglycolic acid*) (SCHIROKOFF), 1880, A., 382.
- Hydroxyoctoic acid**. See Diallyloxalic acid.
- Hydroxyoctoic acid** (*dipropylglycolic acid*) (WORONTSOFF), 1878, A., 29.
- Hydroxyoctoic acid**, lactone of, *mono-* and *tri-bromo-* (HJELT), 1882, A., 946.
- α -Hydroxyoctoic acid and its amide and nitrile (ERLENMEYER and SIGEL), 1874, 981; 1875, 141, 1010.
- α -Hydroxyoctoic acid and its salts [m.p. 107°] (BUTLEROFF), 1882, A., 936.
- Hydroxyoleic acid** (MÜLLER-JACOES), 1882, A., 1147.
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- p*-Hydroxyphenetol. See *p*-Hydroxyethoxybenzene.
- p*-Hydroxyphenol. See Quinol.
- Hydroxyphenyl benzyl ketone**. See Benzoin.
- Hydroxyphenyl mercaptan**, barium salt of (BIEDERMANN), 1876, i., 695.
- o -Hydroxyphenylacetic acid, and its salts (WILL and LAUBENHEIMER), 1880, A., 266.
- p*-Hydroxyphenylacetic acid, and its salts (SALKOWSKI), 1880, A., 252; (BAUMANN), 1880, A., 255. in the animal body (BAUMANN), 1882, A., 514. in human urine (BAUMANN), 1880, A., 648; 1882, A., 514. preparation of, from urine (BAUMANN), 1880, A., 649.
- α -Hydroxyphenylacetic acid. See Mandelic acid.
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- Hydroxyphenylanthranol** (v. PECHMANN), 1881, A., 97.
- γ -Hydroxyphenylbutyric acid (*benzylhydroxypropionic acid*) (BURCKER), 1882, A., 618; (v. PECHMANN), 1882, A., 1074.
- α -Hydroxy- β -phenylisobutyric acid (*benzylmethoxyglycolic acid*), and the action of sulphuric acid on (GABRIEL and MICHAEL), 1879, A., 795.
- α -Hydroxyphenyl-*o*s-dimethylsuccinic acid, lactone of (FITTIG), 1882, A., 190.
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- o*-Hydroxyphenyl- α -methylcrotonic acid (PERKIN), 1881, T., 431.
- Hydroxyphenylnaphthaquinone** and its derivatives (BREUER and ZINCKE), 1879, A., 327; 1880, A., 665; 1882, A., 207.
- α -Hydroxy- α -phenylpropionic acid (*atrolactic acid*) (FITTIG and WURSTER), 1879, A., 379; (FITTIG and KAST), 1881, A., 427; (TIEMANN), 1882, A., 57. synthesis of, from acetophenone (SPIEGEL), 1882, A., 520. dibromo- (BÖTTINGER), 1881, A., 814.
- p*-Hydroxy- α -phenylpropionic acid (*phloretic acid*) (ERLENMEYER), 1880, A., 471. constitution and derivatives of (KÖRNER and CORBETTA), 1875, 458.
- o -Hydroxy- β -phenylpropionic acid. See Hydro-*o*-coumaric acid.
- p*-Hydroxy- β -phenylpropionic acid. See Hydro-*p*-coumaric acid.
- Hydroxyphenylpropionic acids**. See also Phenyllactic acids.
- ω -Hydroxyphenylpyrotartaric acid, lactone of (FITTIG), 1882, A., 190.
- 1'-Hydroxy-3'-phenylisoquinoline (*imidodibenzoincarbonic anhydride*) (GABRIEL and MICHAEL), 1879, A., 246.
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- o -Hydroxyphenylthiocarbamide (BENDIX), 1879, A., 314.
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- o -Hydroxyphthalanilic acid (LADENBURG), 1877, i., 395.

- 1-Hydroxyphthalic acid (v. BAAYER), 1877, ii., 784; (MILLER), 1878, A., 982; (JACOBSEN), 1881, A., 599; 1882, A., 193.
- 2-Hydroxyisophthalic acid (MILLER), 1878, A., 983.
- 4-Hydroxyisophthalic acid, and its salts (OST), 1876, ii., 521; 1877, ii., 485; (JACOBSEN), 1878, A., 582, 583.
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- Hydroxyisophthalic acids, 2- and 4- (HASSE), 1878, A., 116; (TIEMANN and REIMER), 1878, A., 228; (SCHALL), 1879, A., 793.
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- 5-Hydroxyisophthalic acid, and its salts (HEINE), 1880, A., 519; (LÖNNIES), 1881, A., 50; (BEYER), 1882, A., 1297.
- Hydroxyphthalic acids, melting and boiling points of (TIEMANN), 1879, A., 924.
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- 4-Hydroxyphthalic anhydride (v. BAAYER), 1877, ii., 785.
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- Hydroxypiperhydronic acid, *tetrabromo-* (FITTIG and MIELCK), 1874, 899.
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- Hydroxypropanesulphonic acids (MÜLLER), 1874, 360.
- α -Hydroxypropionic acid. See Lactic acid.
- β -Hydroxypropionic acid. See Hydroacrylic acid.
- Hydroxy-*p-isopropylbenzoic* acid and its salts (MEYER), 1878, A., 879; 1879, A., 139, 795; (MEYER and ROSTICKI), 1879, A., 157, 465; (MEYER and MÜLLER), 1882, A., 840.
- Hydroxypropyldiethylamine (*diethylpropylalkine*) (LADENBURG), 1882, A., 165.
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- Hydroxypropyldimethylamine (*dimethylpropylalkine*) (LADENBURG), 1882, A., 165.
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- Hydroxypropylmalonic acid, its salts and lactone (HJELT), 1882, A., 948.
- Hydroxypropylpiperidine (*piperpropylalkine*) (LADENBURG), 1881, A., 1158; 1882, A., 165.
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- Hydroxyisopropylsulphobenzoic acid and its salts (MEYER and BAUR), 1881, A., 16; (MEYER and BONER), 1882, A., 195.
- Hydroxypropyl-*p-toluidine* and its derivatives (MORLEY), 1882, T., 387; A., 723.
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- Hydroxypyrotartaric acid (*itramalic acid*), constitution of (MORRIS), 1880, T., 14.
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- 2'-Hydroxyquinoline. See Carbstyryl.
- 4'-Hydroxyquinoline (*kyaurin*) and its derivatives (KRETSCHY), 1881, A., 828.
- 1-Hydroxyquinoline (α -quinophenol) (BEDALL and FISCHER), 1881, A., 613; 1882, A., 869; (WEIDEL and COBENZL), 1881, A., 743.
- 3-Hydroxyquinoline (β -quinophenol) and its salts (SKRAUP), 1882, A., 223; (WEIDEL), 1882, A., 227.
- Hydroxyquinolines, 1-, 2-, and 3- (SKRAUP), 1882, A., 1111.
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- 1-Hydroxyquinoline-4'-carboxylic acid (α -hydroxycinchonic acid) and its salts (WEIDEL and COBENZL), 1881, A., 713.
- 3-Hydroxyquinoline-1'-carboxylic acid (β -hydroxycinchonic acid) and its salts (WEIDEL), 1882, A., 226.
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- 2'-Hydroxyquinoline-4'-carboxylic acid (2'-hydroxycinchonic acid) (KOENIGS), 1879, A., 472.
- 5-Hydroxysalicylic acid. See 2:5-Dihydroxybenzoic acid.
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- o*-Hydroxystilbene (MICHAEL), 1881, A., 1150.
- Hydroxysuberanic acid (*hydroxysubercarboxylic acid*) (DALE and SCHORLEMMER), 1881, T., 540.

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ω-Hydroxy-o-toluic acid (*oxymethylbenzoic acid*) (HESSERT), 1878, A., 66, 419.

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5-Hydroxy-3-toluic acid and its salts (JACOBSEN), 1882, A., 193.

6-Hydroxy-m-toluic acid (*o-homoparabenzic acid*) and its derivatives (TIEMANN and SCHOTTEN), 1878, A., 877; (SCHALL), 1879, A., 791; (JACOBSEN), 1881, A., 599; (REMSEN and KUHARA), 1882, A., 607; (MAHON), 1882, A., 1205.

2-Hydroxy-p-toluic acid and its salts (FITTICA), 1874, 1166; (V. GERICHTEN and RÖSSLER), 1878, A., 672; 1879, A., 323; (HALL and REMSEN), 1880, A., 257; 1882, A., 186.

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- op*-Hydroxyuvitic acid. preparation of (BÖTTINGER), 1881, A., 172.
- 4-Hydroxyuvitic acid (JACOBSEN), 1879, A., 531.
- Hydroxyuvitic acids, comparison of properties of (JACOBSEN), 1881, A., 172.
- α -Hydroxyvaleramide (*trichlorovalerolactamide*) (PINNER and KLEIN), 1879, A., 41.
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- β -dichloro-**, action of amines on (PLAGEMANN), 1882, A., 973.
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- α -Naphthaquinoneimide**, amido-, hydrochloride, action of *o*- and *p*-toluidine on (GOËS), 1880, A., 399.
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- pp*-Nitramidodiphenyl (SCHULTZ), 1875, 150.
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- 3:1-Nitramido- β -phenylpropionic acid (GABRIEL and STEUDEMANN), 1882, A., 1073.
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- 4:6:2-*d*-Nitramidoresorcinol (*stroph-namic acid*) (BENEDIKT and V. HÜBL), 1881, A., 1133.
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- Nitranthracene and its derivatives (SCHMIDT), 1873, 1233; 1874, 581.
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- d*-Nitranthrol methyl ether (LIEBERMANN and HAGEN), 1882, A., 1212.
- d*-Nitr- and nitronitroso-anthrone (LIEBERMANN and LANDSHOFF), 1881, A., 607.
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- 2:6-*d*-Nitrethylthymol (LADENBURG and ENGELBRECHT), 1878, A., 60.
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- o*-Nitrobenzaldoxime** (*nitrosomethyl-o-nitrobenzene*) (GABRIEL and MEYER), 1882, A., 188.
- m*-Nitrobenzaldoxime** (GABRIEL), 1882, A., 1070.
- Nitrobenzamide** (STRAKOSCH), 1874, 78.
- o*-Nitrobenzamide** (HÜBNER), 1878, A., 140.
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- a*-Nitrobenzene-3:5-disulphonic acid** (HEINZELMANN), 1878, A., 409.
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- m*-Nitrobenzenesulphonamide** (GOSLICH), 1876, i., 930.
- Nitrobenzenesulphonamides**, *m*- and *p*-, action of zinc-dust on (MAHRENHOLTZ and GILBERT), 1880, A., 805.
- tri*Nitrobenzenesulphonanilide** (MICHLER and BLATTNER), 1879, A., 922.
- Nitrobenzenesulphonic acid.** See Benzenesulphonic acid.
- m*-Nitrobenzenesulphonic chloride** (GOSLICH), 1876, i., 930.
- Nitrobenzenyl-*o*-phenylenediamine** (HÜBNER), 1881, A., 1131.
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- p*-Nitrobenzil**, reduction of, by tin (GOLUBEFF), 1874, 273.
- di*Nitrobenzil** (ZAGUMENNY), 1873, 502.
- iso**di*Nitrobenzil** (GOLUBEFF), 1881, A., 422.
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- m*-Nitrobenzoic chloride** (CLAISEN and THOMPSON), 1880, A., 253.
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- Nitrobenzo-*α*-naphthalides**, 2- and 4- (EBELL), 1875, 272, 900.
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- Nitrobenzonaphthylthiocarbamide** (MIQUEL), 1877, ii., 871.
- o*-Nitrobenzonitrile** (HÜBNER), 1878, A., 140.
- m*-Nitrobenzo-*mono*- and -*di*-nitromesidides** (HÜBNER), 1878, A., 144.
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- Nitrobenzophenylthiocarbamide** (MIQUEL), 1877, ii., 870.
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- m*-Nitrobenzoylacetic acid** (LIEBERMANN), 1877, ii., 617.
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- tetra*-Nitrodihydroxydiphenylsulphone, and its salts (ANNAHEIM), 1879, A., 241.
- Nitro-1:3-dimethoxybenzenes, *di*- and 2:4:5-*tri*- (HÖNIG), 1878, A., 727.
- Nitro-1:4-dimethoxybenzenes, *mono*-, 2:5-*di*-, and *tri*- (HABERMANN), 1878, A., 728.
- di*-Nitrodimethoxydiphenylsulphone (ANNAHEIM), 1874, 796.
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- heco*-Nitrodimethylanilinephthalein (FISCHER), 1881, A., 588.
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- α -*di*-Nitrodiphenic acid (HUMMEL), 1879, A., 165.
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- di*-Nitrodiphenoxydiethylamine (WEDDIGE), 1881, A., 1137.
- Nitrodiphenoxyethane (WEDDIGE), 1881, A., 1137.
- di*-Nitrodiphenoxyethane (WEDDIGE), 1880, A., 316.
- Nitrodiphenyl. See Diphenyl.
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- p*-Nitrodiphenyl-*p*-azo- and -azoxy-nitrodiphenyls (WALD), 1877, ii., 341.
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- Nitrodiphenyl-*o*-carboxylic acid (SCHMITZ), 1879, A., 164; (SCHMIDT and SCHULTZ), 1881, A., 435.
- 3:4-*di*-Nitrodiphenyl-*p*-carboxylic acid and its salts (STRASSER and SCHULTZ), 1882, A., 521.
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- o-di*-Nitrodiphenyldiacetylene (v. BAEYER), 1882, A., 619; (v. BAEYER and LANDSBERG), 1882, A., 972.
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- α -*tetra*-Nitrodiresorcinol (BENEDIKT and v. HÜBL), 1881, A., 1132.
- di*-Nitro-*p*-dipropylbenzene (KÖRNER), 1879, A., 142.
- Nitrodi-*p*-tolylamines, *o-mono*- and -*di*- (LELLMANN), 1882, A., 1060.
- heco*-Nitrodi-*p*-tolylamine (LEHNE), 1881, A., 41.
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- 2:4-*di*Nitro- α -naphthol-2' sulphonic acid (LAUTERBACH), 1882, A., 63.
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- α -Nitronaphthylamine, diazo-compound of (*"nitramidodinaaphthylimide"*) (LIEBERMANN and DITTLER), 1873, 1232.
- Nitro-*o*-nitrosoamidoethylphenetol (FÖRSTER), 1880, A., 464.
- di*Nitropentane (CHANCEL), 1882, A., 824.
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- 2:4:6-*tri*Nitrophenol. See Picric acid.
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- o*-Nitrophenoxyacetic acid, behaviour of, with reducing agents (THATE), 1882, A., 849.
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- 2:4-*di*Nitrophenyl allyl oxide (WILLGERODT), 1879, A., 717.
- Nitrophenyl amido- and brom-ethyl oxides, *o*-, *m*-, and *p*- (WEDDIGE), 1881, A., 1137.
- 2:4-*di*Nitrophenyl glyceryl oxide (WILLGERODT), 1879, A., 717.
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- p*-Nitrophenylacetylene** (DREWSSEN), 1882, A., 847.
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- p*-Nitrophenylglycidic acid** (ERLENMEYER), 1882, A., 191.
- m*-Nitrophenylglyoxylamide** (THOMPSON), 1881, A., 814.
- tri*Nitrophenylic acetate** (*acetyl picrate*) (TOMMASI and DAVID), 1873, 1238.
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- β -Nitropropionic acid**, preparation of (LEWKOWITSCH), 1880, A., 33.
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- 1-Nitroso- β -naphthol-3'-sulphonic acid, constitution and reactions of (MELDOLA), 1881, T., 40; A., 436.
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- α -Nitrosopropionic acid and its salts (MEYER and ZÜBLIN), 1878, A., 659; (GUTKNECHT), 1880, A., 712.
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- di*-Nitrosuccino- α -naphthylimide (HÜBNER), 1882, A., 181.
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- Phenoxyaceto-nitrile** and -thiamide (FRITZSCHE), 1880, A., 319.
- Phenoxyacetophenonecarboxylic acid** (GABRIEL), 1881, A., 733.
- α -Phenoxy-cinnamic acid**, and some of its salts (OGIALORO-TODARO), 1881, A., 276.
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- Phenoxymethylenephthalyl** (GABRIEL), 1881, A., 733.

- Phenoxypropionic acid**, and its salts, and bromo- (SAARBAUGH), 1879, A., 642; 1880, A., 393.
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- Phenyl benzyl oxide** (STAEDEL), 1881, A., 723.
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- Phenyl glyceryl oxide**, 2:1-dinitro- (WILLGERODT), 1879, A., 717.
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- Phenyl mercaptans**, amido-, from nitro-benzenesulphinic acids (V. HOFMANN), 1880, A., 389.
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- α -Phenylacrylic acid**. See Atropic acid.
- β -Phenylacrylic acid**. See Cinnamic acid.
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- Phenylamidoacetamide** (TIEMANN and FRIEDLÄNDER), 1882, A., 56.
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- β -Phenylamidoethoxynaphthalene** (*β -naphthylphenylidethoxy ether*) (KOELLE), 1881, A., 178.
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- Phenylbenzyl acetate** (PERKIN and HODGKINSON), 1880, T., 721.
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- Phenylbenzylidenediamine** (BERNTSEN and SZYMANSKI), 1880, A., 639.
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- α -Phenylbutylene** (RADZISZEWSKI), 1876, i., 945.
- β -Phenylbutylene and its dibromide** (PERKIN), 1877, ii., 667; 1879, T., 138.
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- α -Phenylbutylic alcohol** (SCHMIDT and FIEBERG), 1874, 75.
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- Phenyldimethylarsine (MICHAELIS and LINK), 1882, A., 305.
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- Phenyldimethylphosphonium bromide, ethobromide of (GLEICHMANN), 1882, A., 958.
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- m*-Phenylene diphenyl diketone. See *iso*Phthalophenone.
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- Phenyleneacetamidine (HÜBNER), 1882, A., 180.
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- m*-Phenylenecarbamide (MICHLE and ZIMMERMANN), 1882, A., 182.
- p*-Phenylenecarbamide (BENDIX), 1879, A., 314.
- p*-Phenylenediacetic acid (KLIPPERT), 1877, i., 468.
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- p*-Phenylenedimethyldiamine** (*amido-dimethylpheniline*) (WURSTER), 1879, A., 626.
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- m*-Phenylenedi- β -naphthyldiamine** (RUHEMANN), 1882, A., 391.
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- ω -Phenylethylamine** (ω -*amidoethylbenzene*) (BERNSTEIN), 1875, 1025; 1877, i., 617; (SPICA), 1880, A., 241.
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- s-Phenylethylhydrazine** (*hydrazophenylethyl* (FISCHER and EHRLHARDT), 1878, A., 573; 1880, A., 243.
- αs-Phenylethylhydrazine**, ethylbromide of (FISCHER and EHRLHARDT), 1878, A., 573.
- n-Phenylethyl alcohol**. See Benzylcarbinol.
- sec-Phenylethyl alcohol**. See Phenylmethylcarbinol.
- Phenylethyl bromide**. See ω-Bromethylbenzene.
- Phenylethylketone-o-carboxylic acid** (*propiophenonecarboxylic acid*) (GABRIEL and MICHAEL), 1878, A., 735.
- Phenylethyloxamide**, action of phosphorus pentachloride on (WALLACH), 1881, A., 718.
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Parapropaldehyde, β -chloro- (GRIMAUX and ADAM), 1881, A., 406, 888.

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$\alpha\beta$ -dibromo- (*propylenic bromide*) (ERLENMEYER), 1879, A., 908.

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$\alpha\alpha$ -dibromo- (*propylenic bromide*) (REBOUL), 1879, A., 129.

$\beta\beta$ -dibromo- (*bromacetol*) (REBOUL), 1879, A., 129.

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$\alpha\beta$ -dichloro- (*propylenic chloride*) (REBOUL), 1879, A., 128.

$\alpha\gamma$ -dichloro- (*trimethylenic chloride*) (REBOUL), 1873, 1015; 1879, A., 128; (FREUND), 1882, A., 156.

$\alpha\alpha$ -dichloro- (*propylenic chloride*) (REBOUL), 1873, 1015; 1876, i., 894; 1879, A., 128.

$\beta\beta$ -dichloro- (*chloracetol*) (REBOUL), 1879, A., 128.

$\alpha\alpha\gamma$ -trichloro- (*β -chloropropylidene chloride*) (KRESTOWNIKOFF), 1880, A., 234; (VAN ROMBURGH), 1882, A., 589.

$\alpha\alpha\beta\gamma$ -tetrachloro- (*allylene tetrachloride*; *allylidene tetrachloride*) (HARTENSTEIN), 1873, 1218; (VAN ROMBURGH), 1882, A., 376.

$\alpha\beta\beta\gamma$ -tetrachloro- (*allyne tetrachloride*) (HENRY), 1882, A., 1039.

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α -chloro- $\alpha\beta$ -dibromo- (*α -chloropropylenic bromide*) (REBOUL), 1876, i., 894.

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$\alpha\gamma$ -diiodo- (*trimethylenic iodide*) (FREUND), 1882, A., 156.

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- Propanesulphonic acid** (CLAUS), 1875, 880.
- Propanetetracarboxylic acid** (*isoallyl-enchetracarboxylic acid*) (BISCHOFF), 1881, A., 156.
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- aa*-dichloro- (*allylidene chloride*) (VAN ROMBURGH), 1882, A., 376.
- $\beta\gamma$ -dichloro- (*allylene chloride*), action of sodium and carbonic anhydride on (PINNER and SCHAUMANN), 1881, A., 793.
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for chloral (*d.* and *f.*) (BERTHELOT), 1877, ii., 827.

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for chloral hydrate (*d.*) (BERTHELOT), 1877, ii., 827; (*f.*) (BERTHELOT), 1877, ii., 827; 1880, A., 293, 434; 1881, A., 676; (WURTZ), 1880, A., 293, 435, 604.

for *o*-, *m*- and *p*-chloranilines with hydrochloric acid (*cb.*) (LUGININ), 1877, ii., 696; 1879, A., 768, 872.

for chloroethylic alcohol (*f.*) (BERTHELOT), 1881, A., 887.

for chloric acid (*f.*) (THOMSEN), 1873, 1188; 1877, ii., 696; (BERTHELOT), 1877, ii., 825.

for acid chlorides (*d.*) (LUGININ), 1875, 631.

for compounds of metallic chlorides with hydric acids (*f.*) (BERTHELOT), 1881, A., 219.

for chromates (*f.*) (MORGES), 1878, A., 765.

for citrates (*f.*) (BERTHELOT and LUGININ), 1877, i., 681.

THERMOCHEMISTRY:—*Heat of formation*=*f.*; *of transformation*=*t.*; *of decomposition*=*d.*; *of dissociation*=*dis.*; *of combination*=*cb.*; *of combustion*=*c.*; *of neutralisation*=*n.*; *of substitution*=*sb.*; *of hydration*=*h.*; *of oxidation*=*o.*

Thermochemical data for cobalt compounds (*f.*) (THOMSEN), 1877, i., 574.

for cuprous chloride (*f.*) (BERTHELOT), 1880, A., 208; 1881, A., 6; (THOMSEN), 1880, A., 361.

for cuprous iodide (*f.*) (BERTHELOT), 1881, A., 7.

for double iodides of copper, mercury and silver (*t.*) (BELLATI and ROMANESE), 1881, A., 217.

for cyanogen (*f.*) (BERTHELOT), 1879, A., 767; (THOMSEN), 1880, A., 361, 840; (*c.*) (BERTHELOT), 1881, A., 8.

for decenylic alcohol (*dipropylallylcarbinol*) (*c.*) (LUGININ), 1881, A., 871.

for diallyl (*c.* and *f.*) (BERTHELOT and OGIER), 1881, A., 674.

for diamylene (*f.*) (BERTHELOT), 1879, A., 874.

for diazobenzene nitrate (*c. d.* and *f.*) (BERTHELOT and VIEILLE), 1881, A., 809.

for didymium hydroxide (*n.*) (THOMSEN), 1874, 430.

for dimethylethylcarbinol (*c.*) (LUGININ), 1880, A., 787.

for dipicoline (*f.*) (RAMSAY), 1879, T., 696.

for dipropargyl (*c.*) (THOMSEN), 1882, A., 721.

for erbium oxide (*n.*) (THOMSEN), 1874, 430.

for ethanesulphonic acid (*f.*) (BERTHELOT), 1876, i., 872.

for ethers (*f.*) (BERTHELOT), 1876, i., 674; 1879, A., 867; (LUGININ), 1879, A., 871.

for ethers of the haloid acids (*f.*) (BERTHELOT), 1876, i., 675.

for ethylamine and its salts (*c.* and *f.*) (BERTHELOT), 1880, A., 787.

for ethylene into ethylic alcohol (*t.*) (BERTHELOT), 1876, i., 674.

for ethylenic dibromide (*f.*) (BERTHELOT), 1879, A., 435.

for ethylenic glycol (*c.*) (LUGININ), 1880, A., 694.

for ethylenic oxide (*c.* and *f.*) (BERTHELOT), 1881, A., 967.

for ethylic acetate (*f.*) (BERTHELOT), 1879, A., 870.

for ethylic alcohol into ethyl ether (*t.*) (BERTHELOT), 1876, i., 674.

Thermochemical data for ethylic chloride (*f.*) (BERTHELOT), 1879, A., 870; 1881, A., 8.

for ethylic silicate (*f.*) (OGIER), 1879, A., 767.

for ethyldenic chloride (*c.* and *f.*) (BERTHELOT and OGIER), 1881, A., 675.

for explosives (*f.*) (SARRAU and VIEILLE), 1881, A., 968.

for formic acid (*c.*) (BERTHELOT), 1873, 1099.

for furfural (*f.*) (RAMSAY), 1879, T., 696.

for gases (*c.*) (V. THAN), 1881, A., 779.

for glycerol (*f.*) (RAMSAY), 1879, T., 696; (*c.*) (LUGININ), 1880, A., 601.

for gold compounds, influence of allotropy on (*f.*) (THOMSEN), 1876, ii., 371.

for gun-cotton (*f.*) (SARRAU and VIEILLE), 1881, A., 342, 969.

for *n*-heptane and hexahydrotoluene (*c.*) (LUGININ), 1881, A., 1113.

for heptioic aldehyde (*c.*) (LUGININ), 1880, A., 787.

for *n*-hexoic acid (*c.*) (LUGININ), 1881, A., 872; 1882, A., 567.

for hydracids and water (*cb.*) (BERTHELOT), 1873, 715; 1878, A., 363.

for hydrocarbons (*f.*) (THOMSEN), 1880, A., 785, 840; (BERTHELOT), 1881, A., 343; (*c.*) (THOMSEN), 1880, A., 785; (BERTHELOT), 1880, A., 786; (MENDELÉEFF), 1882, A., 916.

for hydrocarbons with hydracids and halogens (*cb.*) (BERTHELOT), 1876, i., 870.

for hydriodic, hydrobromic and hypobromous acids (*f.*) (BERTHELOT), 1877, ii., 823.

for hydrochloric acid with *o*-, *m*- and *p*-chlorinated anilines, and with *p*-nitraniline (*cb.*) (LUGININ), 1877, ii., 696; 1879, A., 768, 872.

for hydrocyanic acid and cyanides (*c.* and *f.*) (BERTHELOT), 1880, A., 839; (THOMSEN), 1880, A., 840; (*c.*) (BERTHELOT), 1881, A., 8.

for hydroferrocyanic acid, and of some ferrocyanides (*f.*) (JOANIS), 1882, A., 791.

THERMOCHEMISTRY: *-Heat of formation = f.; of transformation = t.; of decomposition = d.; of dissociation = dis.; of combination = cb.; of conduction = c.; of neutralisation = n.; of substitution = sb.; of hydration = h.; of oxidation = o.*

Thermochemical data for hydrogen with certain metals (*ch.*) (MORTIER), 1875, 115, 1151.

for hydrogen with the non-metallic elements (*ch.*) (THOMSEN), 1873, 126, 838.

for hydrogen and oxygen (*c.*) (V. THAN), 1877, ii., 690; (BERTHELOT), 1878, A., 5; (MALLARD and LE CHATELIER), 1882, A., 453.

for compounds of hydrogen peroxide with barium oxides (*d.* and *f.*) (BERTHELOT), 1880, A., 602.

for hydroxylamine (*d.* and *f.*) (BERTHELOT), 1877, i., 46.

for hypochlorous acid (*f.*) (THOMSEN), 1873, 1199; (BERTHELOT), 1877, ii., 824.

for hyposulphurous acid (*f.*) (BERTHELOT), 1876, ii., 473.

for iodic acid (*f.*) (THOMSEN), 1873, 1189; (BERTHELOT), 1877, ii., 274.

for periodic acid (*f.*) (THOMSEN), 1873, 1189.

for iron salts (*f.*) (THOMSEN), 1876, i., 672.

for ferrous chloride (*a.*) (THOMSEN), 1875, 226.

for magnetic oxide of iron (*f.*) (BERTHELOT), 1881, A., 219.

for lanthanum oxide (*a.*) (THOMSEN), 1874, 430.

for lead carbonate (*f.*) (THOMSEN), 1880, A., 82, 362.

for lithium chloride (*f.*) (THOMSEN), 1873, i., 29.

for lithium hydroxide (*d.*, *f.* and *n.*) (THOMSEN), 1876, i., 29.

for lutidines (*f.*) (RAMSAY), 1879, T., 696.

for magnesium chloride (*f.*) (THOMSEN), 1876, i., 29.

for magnesium oxychlorides (*f.*) (ANDRÉ), 1882, A., 696.

for magnesium hydroxide (*d.*, *f.* and *n.*) (THOMSEN), 1876, i., 29.

for magnesium sulphide (*f.*) (SABATIER), 1880, A., 523.

for manganese salts (*f.*) (THOMSEN), 1876, i., 672.

for manganese carbonate (*f.*) (THOMSEN), 1880, A., 82, 362.

for mannitol *hexanitrate* (*f.*) (SARRAU and VIELLE), 1881, A., 969.

Thermochemical data for mercury compounds (*f.*) (THOMSEN), 1876, i., 34.

for mercury double salts (*f.*) (BERTHELOT), 1882, A., 684.

for mercury bromides and iodides (*f.*) (BERTHELOT), 1880, A., 688.

for mercury fulminate (*f.*) (BERTHELOT and VIELLE), 1881, A., 780.

for double iodides of mercury, silver and copper (*d.*) (BELLATI and ROMANESI), 1881, A., 217.

for mercuric oxide (*d.* and *f.*) (ECHOIS), 1882, A., 18.

for methane (*c.*) (BERTHELOT), 1881, A., 8.

for methylenic chloride and methylal (*c.* and *f.*) (BERTHELOT and OGER), 1881, A., 674.

for nickel compounds (*f.*) (THOMSEN), 1877, i., 574.

for *p*-nitraniline with hydrochloric acid (*ch.*) (LUGNIN), 1877, ii., 696; 1879, A., 768, 872.

for nitrates (*f.*) (THOMSEN), 1880, A., 82, 603; (BERTHELOT), 1880, A., 522.

for nitroglycerol (*f.*) (SARRAU and VIELLE), 1881, A., 969.

for three isomeric nitrophenols (*sb.*) (LUGNIN), 1879, A., 768.

for nitrogen acids (*f.*) (THOMSEN), 1880, A., 82, 603.

for nitrogen *pentoxide* with water vapour (*ch.*) (BERTHELOT), 1877, ii., 825.

for nitrogen oxides (*f.*) (BERTHELOT), 1874, 440; 1880, A., 522, 688; 1881, A., 6; (THOMSEN), 1880, A., 82, 603, 689.

for nitrogen sulphide (*f.*) (BERTHELOT and VIELLE), 1882, A., 469.

for octinyl alcohol (*methylallylgl-carbinol*) (*c.*) (LUGNIN), 1881, A., 871.

for *sec*-octylic alcohol (*c.*) (LUGNIN), 1882, A., 567.

for oxidising and reducing agents (*sb.*) (THOMSEN), 1873, 1186; 1874, 530; 1875, 223.

for oxygen in hydrogen (*c.*) (SCHILLER and WARTHA), 1878, A., 5.

for the oxygen-molecule (*f.*) (FAIRLEY), 1877, i., 8.

THERMOCHEMISTRY:—*Heat of formation*=*f.*; of *transformation*=*t.*; of *decomposition*=*d.*; of *dissociation*=*dis.*; of *combination*=*cb.*; of *combustion*=*c.*; of *neutralisation*=*n.*; of *substitution*=*sb.*; of *hydration*=*h.*; of *oxidation*=*o.*

Thermochemical data for ozone (*f.*)
(MULDER and VAN DER MEULEN), 1882, A., 915.

for palladium compounds (*f.*)
(JOANNIS), 1882, A., 1258.

for palladium and platinum salts
(*f.*) (THOMSEN), 1877, ii., 566.

for phenol derivatives (*f.*) (LUGININ), 1879, A., 874.

for substituted phenols (*n.*) (LUGININ), 1878, A., 832.

for phosphates (*f.*) (BERTHELOT and LUGININ), 1876, i., 514.

for phosphorus acids (*f.*) (THOMSEN), 1875, 31.

for bromides and iodides of phosphorus (*cb.*) (OGIER), 1881, A., 218.

for phosphorus hydrides (*f.*) (OGIER), 1879, A., 5; 1880, A., 150.

for picoline (*f.*) (RAMSAY), 1879, T., 696.

for the ammonium salt of picric acid (*f.*) (SARRAU and VIEILLE), 1881, A., 969.

for pinacene (*c.*) (LUGININ), 1882, A., 356, 568.

for potassium haloid salts (*f.*) (BERTHELOT), 1882, A., 1019.

for potassium carbonate (*f.*) (THOMSEN), 1880, A., 82, 362.

for potassium perchlorate (*f.*) (BERTHELOT and VIEILLE), 1881, A., 1093.

for potassium chlorate and chloride (*f.*) (THOMSEN), 1880, A., 89.

for potassium chloride (*f.*) (THOMSEN), 1876, i., 29.

for potassium hydroxides (*f.*) (BERTHELOT), 1873, 999, 1096; (*d.*, *f.* and *n.*) (THOMSEN), 1876, i., 29.

for potassium iodate from iodide (*f.*) (BERTHELOT), 1878, A., 8.

for potassium sulphides (*f.* and *h.*) (SABATIER), 1879, A., 865; 1880, A., 689.

for potassium thiosulphate (*dis.* and *f.*) (BERTHELOT), 1876, i., 676.

for propaldehyde (*f.*) (BERTHELOT), 1876, ii., 474.

for propylene into isopropyl alcohol (*t.*) (BERTHELOT), 1876, i., 674.

for propylenic glycols (*c.*) (LUGININ), 1881, A., 9.

Thermochemical data for *n*- and isopropyl alcohols (*c.*) (LUGININ), 1880, A., 787.

for pyridine and pyrroline (*f.*) (RAMSAY), 1879, T., 696.

for reducing and oxidising agents (*sb.*) (THOMSEN), 1873, 1186; 1874, 530; 1875, 223.

for hydrated salts (*f.*) (THOMSEN), 1879, A., 6.

for silicon hydride (*f.*) (OGIER), 1879, A., 767.

for silicon sulphide (*f.*) (SABATIER), 1880, A., 523; 1881, A., 492.

for silver haloid salts (*f.*) (BERTHELOT), 1882, A., 1019.

for silver carbonate (*f.*) (THOMSEN), 1880, A., 82, 362.

for the double iodides of silver, mercury and copper (*t.*) (BELLATI and ROMANESE), 1881, A., 217.

for sodium carbonate (*f.*) (THOMSEN), 1880, A., 82, 362.

for sodium chloride (*f.*) (THOMSEN), 1876, i., 29.

for sodium hydroxides (*f.*) (BERTHELOT), 1873, 999, 1096; (*d.*, *f.* and *n.*) (THOMSEN), 1876, i., 29.

for sodium oxide (*h.*) (BEKETOFF), 1879, A., 689.

for sodium sulphate (*h.*) (DE COPPET), 1879, A., 589.

for sodium sulphides (*f.* and *h.*) (SABATIER), 1879, A., 865; 1880, A., 690; 1881, A., 492.

for strontium carbonate (*f.*) (THOMSEN), 1880, A., 82, 362.

for strontium hydroxide (*f.*) (BERTHELOT), 1873, 1096.

for salts of succinic acid (*f.*) (CHRUSTCHOFF), 1880, A., 151.

for sulphur (*c.*) (RAMSAY), 1879, T., 697; (THOMSEN), 1880, A., 785.

for sulphur chloride, bromide, and iodide (*f.*) (OGIER), 1881, A., 673.

for sulphur oxychlorides (*f.*) (OGIER), 1882, A., 463.

for hydrogen persulphide (*f.*) (SABATIER), 1880, A., 691.

for sulphurous anhydride (*f.*) (BERTHELOT), 1877, ii., 823; 1881, A., 673.

for sulphur oxides (*f.*) (BERTHELOT), 1880, A., 688; 1881, A., 6, 673.

THERMOCHEMISTRY: *Heat of formation* = *f.*; *of transformation* = *t.*; *of decomposition* = *d.*; *of dissociation* = *dis.*; *of combination* = *cb.*; *of combustion* = *c.*; *of neutralisation* = *n.*; *of substitution* = *sb.*; *of hydration* = *h.*; *of oxidation* = *o.*

Thermochemical data for anhydrous sulphates (*f.*) (THOMSEN, 1880, A., 82, 362.

for sulphides (*f.*) (BERTHELOT), 1874, 962, 1018; (THOMSEN), 1879, A., 433; (*f.*, *h.* and *o.*) (SABATIER), 1881, A., 493.

for thiocyanic acid and some of its salts (*f.*) (JOANNIS), 1882, A., 1158.

for tin compounds (*f.*) (THOMSEN), 1877, i., 574.

for tin bromides (*f.*) (BERTHELOT), 1880, A., 688.

for toluenesulphonic acid (*f.*) (BERTHELOT), 1876, i., 872.

for toluidine (*f.*) (RAMSAY), 1879, T., 696.

for toluidine hydrochloride (*f.*) (LUGNIN), 1879, A., 871.

for trimethylamine and its salts (*c.* and *f.*) (BERTHELOT), 1880, A., 787.

for the chloranhydride of valeric acid (*d.*) (LUGNIN), 1874, 356.

for vinyl ethyl carbinol (*c.*) (LUGNIN), 1881, A., 9.

for water (*f.*) (SCHULLER), 1882, A., 135, 682.

for oxygenated water (*f.*) (BERTHELOT), 1876, i., 183.

for yttrium oxide (*n.*) (THOMSEN), 1874, 430.

for zinc salts (*f.*) (THOMSEN), 1876, i., 672.

for zinc ammonium chlorides (*f.*) (ANDRÉ), 1882, A., 1165.

Heat of solution of acetic and tri-chloroacetic acids (LUGNIN), 1873, 1100.

of alcohols in water (ALEXÉEFF), 1881, A., 9.

of oxides and hydroxides of the alkaline earths (BERTHELOT), 1873, 1096.

of aluminium chloride (THOMSEN), 1876, i., 29.

of ammonia (BERTHELOT), 1873, 1096.

of ammonium nitrate (TOLLINGER), 1876, ii., 40; 1877, i., 678.

of benzenesulphonic acid (BERTHELOT), 1876, i., 872.

of bromine compounds (THOMSEN), 1877, ii., 693; 1879, A., 6.

of chloral and chloral hydrate (BERTHELOT), 1877, ii., 827.

Heat of solution of chlorine in water (BERTHELOT), 1873, 1094.

of chlorine compounds (THOMSEN), 1877, ii., 693; 1879, A., 6.

of cuprous chloride (BERTHELOT), 1880, A., 208; 1881, A., 6.

of cyanogen (HAMMERL), 1880, A., 435.

of dimethyl oxide (BERTHELOT), 1881, A., 8.

of ethylamine (BERTHELOT), 1880, A., 787.

of ethylenic oxide (BERTHELOT), 1881, A., 967.

of hydrochloric acid (THOMSEN), 1873, 1096; 1874, 957.

of iodine compounds (THOMSEN), 1877, ii., 693; 1879, A., 6.

of iron carbide in mercuric chloride (TROOST and HAUTEFEUILLE), 1875, 611.

of iron chlorides (SABATIER), 1881, A., 964.

of lithium and magnesium chlorides (THOMSEN), 1876, i., 29.

of manganese carbide in mercuric chloride (TROOST and HAUTEFEUILLE), 1875, 611.

of methylal (BERTHELOT and OGIER), 1881, A., 675.

of metallic nitrates (THOMSEN), 1880, A., 82.

of potassium chloride (THOMSEN), 1876, i., 29; (V. RECHENBERG), 1879, A., 588.

of salts of the fatty acids (BERTHELOT), 1875, 1005.

of mixed salts in water (WINKELMANX), 1874, 1049.

of some mixtures of salts (CHRISTSCHOFF), 1882, A., 1257.

of sodium chloride (THOMSEN), 1876, i., 29.

of slightly soluble substances (BERTHELOT), 1876, i., 512.

of various solid, liquid and gaseous substances in water (THOMSEN), 1873, 1101.

of the sulphides (SABATIER), 1881, A., 492.

of the tartaric acids (BERTHELOT and JUNGFEISCH), 1874, 763.

of tin compounds (THOMSEN), 1877, i., 574.

of trimethylamine (BERTHELOT), 1880, A., 787.

THERMOCHEMISTRY:—

- Heat of dilution of perchloric acid (BERTHELOT), 1881, A., 1092.
 of nitric acid (BERTHELOT), 1874, 762.
- Thermochemistry.** See also Calorimetry.
- Thermodiffusion.** See Diffusion.
- Thermodynamics.** See Heat under Thermochemistry.
- Thermoelectric.** See under Electrochemistry.
- Thermometers.** See under Thermochemistry.
- Thectia percolida*, constituents of (WARDEN), 1882, A., 308, 1126; (DE VRIJ), 1882, A., 328.
- Thevetin and thevetin-blue** (WARDEN), 1882, A., 308.
- Thialdine**, formula of (GUARESCHI), 1879, A., 711.
 action of potassium permanganate on (GUARESCHI), 1878, A., 859; 1879, A., 710.
- Thiamides** (WANSTRAT), 1873, 909; (WALLACH), 1880, A., 556.
 preparation of (V. HOFMANN), 1878, A., 396.
 constitution of (BERNTHSEN), 1877, i., 618.
 of monobasic organic acids (BERNTHSEN), 1877, i., 616; 1878, A., 70, 788; 1879, A., 922.
 of the oxalic acid series (WALLACH and PIRATH), 1879, A., 784.
- Thioacetanilide** (V. HOFMANN), 1878, A., 396; (LEO), 1878, A., 409; (BERNTHSEN), 1878, A., 790.
 action of methylic iodide on (WALLACH), 1879, A., 312.
 sodium derivative of, action of ethylic bromide and chloracetate on (WALLACH), 1879, A., 312.
 reactions of (WALLACH), 1880, A., 556.
- Thioacetanilides**, *di-* and *tri-* (SCHMIDT), 1878, A., 974.
- Thioacetic acid**, derivatives of (GABRIEL), 1880, A., 33.
 ethereal salts of (WALLACH and BLEIBTREU), 1879, A., 786.
- Thioacetomethylanilide** (WALLACH), 1880, A., 557.
- Thio- α -acetonnaphthalide** (BERNTHSEN and TROMPETER), 1879, A., 147.
- Thioacetone**, formation of (SPRING), 1881, A., 711.
- Thioacetophenone** (ENGLER), 1879, A., 61.
- Thio-*p*-acetotolulide** (BERNTHSEN and TROMPETER), 1879, A., 147.
- Thio- α - and -*p*-acetotolulides**, melting points of (WALLACH), 1880, A., 557.
- Thioaldehydes** (KLINGER), 1877, ii., 305; 1878, A., 132, 720.
- Thioammeline**, a new derivative of perthiocyanogen (PONOMAREFF), 1875, 1183.
- "Thioamylic acid"** from the mother-liquors of corallin (COMMAILLE), 1878, 278.
- Thioaniline** (*p*-diamidophenyl sulphide) (SCHMIDT), 1878, A., 974.
 action of nitrous acid on (KRAFFT), 1874, 806; 1875, 153.
- di*Thioaniline and its sulphate (SCHMIDT), 1878, A., 974.
- ψ -di*Thioaniline (*p*-diamidophenyl disulphide) (SCHMIDT), 1878, A., 975.
- Thioarsenides**, sulphides and arsenides, crystallographic and chemical relations of natural (RAMMELSBURG), 1874, 547.
- Thioarsenious acid** and its salts (NILSON), 1876, ii., 481.
- Thiobenzaldehyde** (*benzylidene sulphide*), and the action of potash on (BÖTTINGER), 1879, A., 791.
- Thiobenzamide** (BERNTHSEN), 1878, A., 70, 790.
 action of nascent hydrogen on (BERNTHSEN), 1877, ii., 887.
- Thiobenzanilide** (BERNTHSEN), 1878, A., 70, 585, 790; (LEO), 1878, A., 409; (V. HOFMANN), 1878, A., 585.
- β -Thiobenzoic acid**, Fleischer's (KLINGER), 1882, A., 1058.
- Thio- α -benzonaphthalide** (BERNTHSEN and TROMPETER), 1879, A., 147.
- Thiobenzophenone** (BEHR), 1873, 276; (ENGLER), 1879, A., 61.
- Thio-*p*-benzotolulide** (LEO), 1878, A., 409.
- Thiobenzotolylene-2:4-diamine** (BERNTHSEN and TROMPETER), 1879, A., 147.
- di*Thiobisdimethylaniline, desulphurisation of (HANIMANN and HANNHAET), 1879, A., 714.
- Thiobismuthyl chloride** (MUIR, HOFFMEISTER, and ROBBS), 1881, T., 35.
- Thiocarbamic acid**, derivatives of (HLASIWETZ and KACHLER), 1873, 265, 628.
- Thiocarbamates** (WILL), 1882, A., 723, 1088.
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- α -Thiocarbamic acid**, ammonium salt of (KRETSCHMAR), 1874, 361.
- di*Thiocarbamic acid, relation of, to thiocarbamide (BERNTHSEN and FRIESE), 1882, A., 1090.

- Thiocarbamide** (*sulphurea*) (NENCKI, 1873, 1130; (CLAUS), 1873, 1131; 1874, 573; 1876, i., 571; (VOLHARD), 1874, 464; (BLANKENHORN, 1878, A., 215; (GUARESCHI), 1878, A., 860.
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 constitution of (RATHKE), 1882, A., 166; (NENCKI and STEBER), 1882, A., 501.
 action of chloracetocarbamide and chloracetodimethylcarbamide on (KRAMP), 1880, A., 631.
 action of chloro-*o*-nitrobenzene on (WILLGERODE), 1878, A., 141.
 action of iodine on (LETNY), 1876, i., 911.
 action of ethyloxalic chloride on (PEITZSCH), 1874, 1161.
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 relation of, to *d*-thiocarbamic acid (BERNTHSEN and FRIESE), 1882, A., 1090.
 compounds of (CLAUS), 1874, 574; 1875, 882; 1876, i., 934; (VOLHARD), 1874, 574; (MALY), 1874, 684; (RATHKE), 1882, A., 166; (NENCKI and STEBER), 1882, A., 501.
 with ethylic bromide (CLAUS), 1876, i., 572.
 with ethylic oxalate (NENCKI), 1874, 981, 1088.
 with methylic and ethylic iodides (BERNTHSEN and KLINGER), 1878, A., 569.
 with metallic salts (MALY), 1876, i., 911.
 with silver chloride (BAUMANN), 1875, 632.
 sulphine-compounds of (BERNTHSEN and KLINGER), 1878, A., 569; 1879, A., 650.
 bromo- and chloro- (CLAUS), 1876, i., 572.
- Thiocarbamides** (WEITH), 1875, 251.
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 action of carbonyl chloride, and of alcoholic bromides on (WILL), 1881, A., 905.
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- Thiocarbamides**, aromatic (RATHKE, 1879, A., 804; (FEUERLEIN, 1880, A., 41.
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 ethylated (GRODZKI), 1882, A., 823.
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oxythiotetrachloride (CLAUSNIZER), 1879, A., 691.
- Titanium organic compounds:** —
 titanous ethers (DEMARÇAY), 1875, 411.
trichlorhydrin (BEDSON), 1876, i., 313.
- Titanium minerals**, occurrence of, in the Saxon granulites (LEHMANN), 1882, A., 580.
- Titanium**, estimation of, in pig-iron and steel (DROWN and SHIMER), 1881, A., 647.
- Titanomorphite.** See Sphene.
- Titanotungstates** (KLEIN), 1881, A., 880.
- Tobacco**, combustibility of (QUAIAT), 1881, A., 68.
 consideration of the active poison in the combustion-products of (KISSLING), 1882, A., 906, 1253.
 action of alcohol and ether on, and the distillation of the extract thus obtained (SKALWEIT), 1882, A., 1005.
 Italian, improvement of (DE NEGRI), 1880, A., 200.
 composition of the ash of Virginian, with estimation of nicotine and total nitrogen in (IRBY and CABELL), 1875, 289.
 estimation of nicotine in (ZINOFFSKY), 1874, 497; (SKALWEIT), 1882, A., 108; (KISSLING), 1882, A., 1005.
 See also under Agricultural Chemistry.
- Tobacco-smoke**, nicotine in (HEUBEL), 1873, 760; (KISSLING), 1882, A., 906, 1253.
 Virginian, composition of (SCHWARZ), 1878, A., 188.
- Tobermorite.** See Gyrólite.
- Tolane.** See Diphenylacetylene.
- p-Tolonyl-o-phenylenediamine (anhydrotolylidiamidobenzene)** (HÜBNER), 1878, A., 144; 1882, A., 504; (BRÜCKNER), 1881, A., 93.
- p-Tolonyltolylene-3:4-diamine (anhydrotolylidiamidobenzene)** (HÜBNER), 1878, A., 144; 1882, A., 504.

(*Toluene compounds Me=1.*)
p-Tolonyl-*m*-xylylene-5:6-diamine (*anhydrodiamido-p-tolylxylylene*) (HÜBNER), 1878, A., 144; 1882, A., 504.
 oxidation of (BRÜCKNER), 1881, A., 94.
Tolidine. See Ditolyl, diamido-.
o-Tolualdehyde (RAYMAN), 1877, ii., 894.
m-Tolualdehyde (GUNDELACH), 1876, ii., 514; (ETARD), 1880, A., 468; 1881, A., 582.
p-Toluanide (SPICA), 1876, i., 600; (FISCHLI), 1879, A., 638.
 thio- (PATERNO and SPICA), 1875, 642.
p-Toluanilide (FISCHLI), 1879, A., 638.
 oxidation of (BRÜCKNER), 1881, A., 95.
p-Tolubenzylamine. See *p*-Xylidine.
Toluene (*methylbenzene*) (HODGKINSON), 1878, T., 497.
 formation of, from dibenzyl (BARBIER), 1877, i., 74.
 electrolysis of (RENARD), 1881, A., 721.
 volume of mixtures of carbon tetrachloride and (BROWN), 1881, T., 211.
 distillation of (NAUMANN), 1878, A., 47.
 distillation of mixtures of carbon tetrachloride and (BROWN), 1881, T., 304, 528.
 action of heat on (CARNELLEY), 1880, T., 702.
 action of heat on the mixed vapours of benzene and (CARNELLEY), 1880, T., 701.
 action of amyllic chloroxalate on (ROSER), 1881, A., 731.
 action of antimony trichloride on (SMITH), 1876, ii., 31; 1877, ii., 553.
 action of bromine on (JACKSON and FIELD), 1880, A., 878.
 action of carbonyl chloride on (ADOR and CRAFTS), 1878, A., 405.
 action of chloral and aldehyde on (FISCHER), 1875, 154.
 action of chlorosulphonic acid on (BECKURTS and OTTO), 1879, A., 229.
 action of chromyl dichloride on (ETARD), 1877, i., 584; 1881, A., 581.
 action of ethylenic bromide on, in presence of aluminium chloride (FRIEDEL and BALSOHN), 1881, A., 260.

(*Toluene compounds Me=1.*)
Toluene (*methylbenzene*), action of hydriodic acid on (WREDEN), 1876, i., 914.
 action of methylal on (WEILER), 1875, 151.
 action of nitrogen peroxide on (LEEDS), 1881, A., 584.
 action of oxygen and sulphur on (FRIEDEL and CRAFTS), 1878, A., 670.
 action of phosphorus trichloride on (LANGE), 1875, 1189; (MICHAELIS and LANGE), 1876, i., 392.
 action of sulphuric acid on (BECKURTS), 1877, ii., 774.
 chlorination of, by means of molybdenum pentachloride (ARONHEIM and DIETRICH), 1876, i., 392.
 a new base obtained by the (SMITH), 1880, A., 387.
 methylation of (JACOBSEN), 1882, A., 390.
 illuminating power of (KNUBLAUCH), 1881, A., 329.
 compounds of, with aluminium chloride (GUSTAVSON), 1879, A., 308, 461.
 some new derivatives of (ARONHEIM and DIETRICH), 1876, i., 392; (NEVILLE and WINTHER), 1881, T., 84.
Toluene, amido-. See Toluidine.
 diamido-. See Tolylenediamine.
 triamido-, hydrochloride, and sulphate of (RUHEMANN), 1882, A., 392.
 bromo-, isomeric, influence of the amido-group on the orientation of bromine or NO₂ in the benzene-nucleus, as illustrated by the preparation of (NEVILLE and WINTHER), 1880, T., 429.
o-bromo-, and its derivatives (WROBLEWSKI), 1874, 53.
o-xylene from (JANNASCH and HÜBNER), 1874, 257.
m-bromo- (WROBLEWSKI), 1874, 50; 1875, 155; 1878, A., 977; (HÜBNER and GRETE), 1874, 151; (GRETE), 1874, 986; 1875, 887; 1876, i., 71.
p-bromo- (WROBLEWSKI), 1874, 53.
 oxidation of (ETARD), 1879, A., 320; 1881, A., 581.
o- and *p*-bromo- (HÜBNER and POST), 1874, 56.
o-, *m*- and *p*-bromo-, preparation and properties of (KÖRNER), 1876, i., 216.

(*Toluene compounds Me=1.*)

Toluene. ω -bromo-. See Benzyllic bromide.

3:5-*di*bromo-. preparation of orcinol from (NEVILE and WINTHER), 1882, T., 421.

2:3-, 2:5-, and 3:4-*di*bromo-, position taken by the nitro-group on nitrating (NEVILE and WINTHER), 1881, T., 83.

*di*bromo-, isomeric (WROBLEWSKI), 1874, 53; (NEVILE and WINTHER), 1880, T., 431.

*di*bromo-. See also Benzyllic bromide, bromo-.

3:4:5- and 2:4:6-*tri*bromo- (WROBLEWSKI), 1874, 54.

tri- and *tetra*-bromo-, isomeric, preparation of (NEVILE and WINTHER), 1880, T., 446.

*penta*bromo- (GUSTAVSON), 1878, A., 48; 1879, A., 142; (NEVILE and WINTHER), 1880, T., 450.

2:3- or 5- and 3:4-bromiodo- (WROBLEWSKI), 1874, 51.

3:5:4-*di*bromiodo- (WROBLEWSKI), 1874, 54; 1878, A., 977.

3:5:2:4-*di*bromodiodo- (WROBLEWSKI), 1878, A., 978.

3:2- and 3:4-bromiodonitro- (WROBLEWSKI), 1874, 51.

3:5:4:2-*di*bromiodonitro- and 3:5:2:4-*di*bromodiodonitro- (WROBLEWSKI), 1878, A., 978.

m-bromo-*o*-nitro- (WROBLEWSKI), 1874, 53; (GRETE), 1876, i., 72.

2:4-bromonitro-, preparation of (NEVILE and WINTHER), 1881, T., 84.

3:5-bromonitro- (WROBLEWSKI), 1878, A., 977.

4:2- and 4:3-bromonitro- (WROBLEWSKI), 1874, 53; 1875, 888.

ω -bromo-3- and -4-nitro- and *di*-bromo-*o*-nitro- (WACHENDORFF), 1877, i., 207.

2:3- and 3:5-*di*bromonitro- (WROBLEWSKI), 1874, 54.

2:3:5-*di*bromonitro- (NEVILE and WINTHER), 1880, T., 434.

2:4:6:3-*tri*bromonitro- (WROBLEWSKI), 1874, 54.

2:5:6:4-*tri*bromonitro-, preparation of (NEVILE and WINTHER), 1881, T., 84.

chlorinated derivatives of, boiling-points of (HINRICHS), 1875, 728.

m-chloro- (WROBLEWSKI), 1874, 54.

p-chloro- (ENGELBRECHT), 1874, 986.

o- and *p*-chloro- (HÜBNER and MAJERT), 1873, 1135.

(*Toluene compounds Me=1.*)

Toluene. *monochloro*- [b.p. 158°], *di*-chloro- [b.p. 196°] and *trichloro*- [m.p. 73°, and b.p. 237°] (ARONHEIM and DIETRICH), 1876, i., 392.

α - and β -chlorido- (WROBLEWSKI), 1871, 55.

chloronitro-, action of sodium on (v. Hofmann and GEYGER), 1873, 169.

4:2-chloronitro- (WROBLEWSKI), 1874, 55; (ENGELBRECHT), 1874, 986.

ω -chloro-4-nitro- and 2-4-chloronitro- (WACHENDORFF), 1877, i., 207.

dichloronitro- (WROBLEWSKI), 1874, 56.

o-nitro-, action of amyllic chloroxalate on (ROSER), 1881, A., 731.

anthranilic acid from (GREIFF), 1880, A., 618.

m-nitro- (GOLDSCHMIDT), 1879, A., 236.

presence of, in commercial nitro-toluene (MONNET, REVERDIN and NÖLTING), 1879, A., 625.

p-nitro-, action of chromyl *dichloride* on (ÉTARD), 1881, A., 583.

action of, on the animal economy (JAFFÉ), 1875, 478.

isomeric sulpho-acids from (HART and REMSEN), 1877, ii., 776.

m- and *p*-nitro- (ROSENSTIEHL), 1873, 272.

o- and *p*-nitro-, action of sodium methoxide on (KLINGER), 1882, A., 1062.

o- and *p*-*mono*-, 2:4-*di*-, and 2:4:6-*tri*-nitro- (MILLS), 1876, i., 393.

2:4-*dinitro*- (ROSENSTIEHL), 1873, 274.

3:5-*dinitro*- (STAEDEL), 1881, A., 724.

preparation of orcinol from (NEVILE and WINTHER), 1882, T., 415.

Toluene red (ROSENSTIEHL and GERBER), 1882, A., 964.

Toluene sulphhydrate. See Toly mercaptan.

Tolueneazo-. See under Azo-.

Toluene*dichlorodichromic acid* (*benzylidenedichlorochromic acid*) (ÉTARD), 1881, A., 581.

Toluenedicarboxylic acid (*methylphthalic acid*) (BLUMSTRAND), 1873, 506.

α -**Toluene** 2:4-*disulphonamide* (FAHLBERG), 1879, A., 804; 1881, A., 816.

(*Toluene compounds Me=1.*)

α -Toluene-2:4-disulphonic acid and its derivatives (BLOMSTRAND), 1873, 505; (GNEHM), 1877, ii., 893; (FAHLBERG), 1879, A., 804; 1881, A., 816.

preparation of (GNEHM and FORRER), 1877, ii., 611.

constitution of (CLAËSSON and BERG), 1880, A., 889.

α -Toluene-2:4-disulphonic chloride (FAHLBERG), 1881, A., 816.

Toluenephosphinic acid (MICHAELIS and PANEK), 1880, A., 641.

Toluenephosphochlorides (MICHAELIS), 1879, A., 721; (MICHAELIS and PANEK), 1882, A., 959.

Toluenephosphonic acids, and their salts (MICHAELIS and PANEK), 1880, A., 641; 1882, A., 959.

Toluenephosphonic acid, trichloro- (MICHAELIS and LANGE), 1876, i., 392.

p -Toluenephosphoroxychloride (MICHAELIS and PANEK), 1882, A., 959.

p -Toluenesulphinic acid, new method of preparing (SCHILLER and OTTO), 1877, i., 312.

action of fuming nitric acid, and of nitrous acid on (KOENIGS), 1879, A., 314.

o -Toluenesulphonamide (BECKURTS), 1877, ii., 775; (FAHLBERG), 1879, A., 804.

oxidation of (REMSEN), 1876, i., 258; (FAHLBERG and REMSEN), 1879, A., 628.

m -Toluenesulphonamide, oxidation of (REMSEN and PALMER), 1882, A., 1095.

p -Toluenesulphonamide, oxidation of (REMSEN), 1876, i., 258.

Toluene-4-sulphonamide, 2:6-(?)*di*-nitro- (SCHWANERT), 1877, ii., 471.

Toluenesulphonic acid and bromo- (GERVER), 1874, 168.

heat of formation of (BERTHELOT), 1876, i., 872.

o -Toluenesulphonic acid (HÜBNER and POST), 1874, 58; (BECKURTS), 1877, ii., 775.

formation of (JENSSSEN), 1875, 77.

and its amide, 5-bromo- (LIMPRICHT), 1874, 902; (WECKWARTH), 1874, 1093.

m-bromonitro- (WROBLEWSKI), 1874, 52; (LIMPRICHT), 1874, 902.

p-bromonitro-, and its salts (HÜBNER and HAESSELBARTH), 1873, 886; (HÜBNER and POST), 1874, 57.

*di*nitro- (SCHWANERT), 1877, ii., 469, 612.

(*Toluene compounds Me=1.*)

m -Toluenesulphonic acid (HÜBNER and POST), 1874, 60; (v. PECHMANN), 1875, 79.

o-bromonitro-, and its salts (HÜBNER and POST), 1874, 59.

p-bromonitro-, and its salts (HÜBNER and HAESSELBARTH), 1873, 886; (HÜBNER and POST), 1874, 56.

Toluene- m -sulphonic acid, Beckurts' so-called (FAHLBERG), 1879, A., 804; (OTTO), 1880, A., 810.

p -Toluenesulphonic acid, experiments for preparing the thio-ethers of (SCHILLER and OTTO), 1877, i., 469.

sodium salt of, action of ethylenic chloride on (OTTO), 1880, A., 811.

o-bromonitro- (HAYDUCK), 1874, 1096.

*di*nitro- (SCHWANERT), 1877, ii., 469, 612.

Toluene-2-sulphonic acid, 4-bromo-, and its derivatives (HÜBNER and HAESSELBARTH), 1873, 886; (JENSSSEN), 1874, 480; (LIMPRICHT), 1875, 264.

4-bromo-, and its salts, amide and chloride (HÜBNER and POST), 1874, 58; (JENSSSEN), 1875, 77.

4-chloro-, and its salts (HÜBNER and MAJERT), 1873, 1136; (JENSSSEN), 1875, 78.

4-nitro- (HART and REMSEN), 1877, ii., 776.

4-nitro-, and its chloride and amide (JENSSSEN), 1874, 479.

Toluene-3-sulphonic acid, 4-bromo- (LIMPRICHT), 1874, 991; 1875, 264; (v. PECHMANN), 1875, 80.

4-bromo-, and its amide (HÜBNER and POST), 1874, 56.

6-bromo- (LIMPRICHT), 1874, 991; 1875, 264; (v. PECHMANN), 1875, 79.

6-bromo-, and its salts, and amide and chloride (HÜBNER and POST), 1874, 58.

*di*bromo- (SCHÄFER), 1875, 370, 462.

4- and 6-chloro-, and its metallic salts (HÜBNER and MAJERT), 1873, 1136.

Toluene-5-sulphonic acid, 3-bromo-, preparation of oreinol from (NEVILE and WINTHER), 1882, T., 420.

Toluene- ω -sulphonic acid (*benzylsulphonic acid*) and its potassium salt (OTTO and LÜDERS), 1880, A., 812.

p-chloro-, and its salts (JACKSON and WHITE), 1880, A., 879; 1881, A., 806.

Toluenesulphonic acids and their derivatives (JENSSSEN), 1875, 77; (v. PECHMANN), 1875, 78; (CLAËSSON and WALLIN), 1880, A., 256.

(*Toluene compounds Me=1.*)

Toluenesulphonic acids from diazo-compounds (MÜLLER and WIESINGER), 1879, A., 933.

m-bromo- [α - β - and γ -acids], and their salts (WROBLEWSKI), 1874, 52.

p-iodo- (GLASSNER), 1875, 897.

Toluenesulphonic chloride, liquid, and the action of ammonia on (FAHLBERG), 1879, A., 801.

p-**Toluenesulphonic chloride**, *d*-nitro- (SCHWANERT), 1877, ii., 471.

Toluene- α -sulphonic chloride and **amide** (LIMPRICHT), 1873, 1040; (OTTO and LÜDERS), 1880, A., 812.

Toluene-2:4:6-trisulphonic acid and its salts and amide (CLAESSEN), 1881, A., 429.

α -Toluic acid. See Phenylacetic acid.

***o*-Toluic acid** (*methylbenzoic acid*), formation of (FITTIG and RAMSAY), 1874, 68.

oxidation of, to phthalic acid (WEITH), 1875, 73.

prepared synthetically from liquid dimethylbenzene, oxidation of, by chromic acid (JANNASCH), 1874, 479.

m-**Toluic acid** and its derivatives (FITTIG), 1873, 276; (BÖTTINGER and RAMSAY), 1874, 69; (JACOBSEN), 1882, A., 185; (RADZISZEWSKI and WISPEK), 1882, A., 1283.

oxidation of *m*-xylene to (BRÜCKNER), 1876, ii., 85.

amido-, transformation of, into chloro- and bromo-*m*-toluic acids (REMSEN and KUHARA), 1882, A., 607.

6-bromo- (JACOBSEN), 1882, A., 185; (KELBE), 1882, A., 618.

6-chloro- and 6-bromo-, transformation of amido-*m*-toluic acid into (REMSEN and KUHARA), 1882, A., 607.

6-nitro- (REMSEN and KUHARA), 1882, A., 607.

p-**Toluic acid** (v. GERICHTEN), 1878, A., 49; (BRUYLANTS), 1878, A., 158; (ADOR and CRAFTS), 1878, A., 405; (FISCHL), 1879, A., 638.

formation of, from *p*-toluenesulphonic acid (REMSEN), 1875, 1264.

preparation of, from *p*-toluidine (WEITH), 1873, 902.

conversion of, into *p*-toluidine (LOSSEN), 1875, 769.

2-bromo- (JANNASCH and DIECKMANN), 1874, 477; (MORSE and REMSEN), 1878, A., 405.

from *p*-toluic acid and bromine (BRÜCKNER), 1876, ii., 85.

(*Toluene compounds Me=1.*)

p-**Toluic acid**, 2-chloro- (v. GERICHTEN), 1878, A., 49.

2-nitro-, from *cymene* (LANDOLPH), 1873, 1227.

fluoro- (PATLENO and OLIVIERI), 1882, A., 614.

2:6-*d*-nitro- (BRÜCKNER), 1876, i., 925.

Toluic acids, nitro- (FITTIG), 1875, 265.

p-**Toluic chloride** (ADOR and CRAFTS), 1878, A., 405.

Toluidine (LANDGREBE), 1878, A., 217. heat of formation of (RAMSAY), 1879, T., 696.

action of carbonic oxide on (GARNITSCH-GARNITZKY), 1878, A., 217. action of chloroacetic chloride on (TOMMASI), 1873, 911.

crude, estimation of *m*-toluidine in (WURSTER and RIEDEL), 1880, A., 110.

o-**Toluidine** (LORENZ), 1875, 80.

secondary amines formed by the action of liquid, on aniline hydrochloride (GIRARD and WILLM), 1876, ii., 98.

action of hydrogen dioxide on (LEEDS), 1882, A., 502.

action of, on *o*-toluidine-*m*-sulphonic acid (NEVILLE and WINTHER), 1880, T., 631.

oxidation of, by potassium permanganate (HOOGWERFF and VAN DORP), 1878, A., 973.

compounds, results of fusing, with aniline compounds (BIBANOFF), 1874, 1190.

compounds of, with mercuric bromide and iodide (KLEIN), 1880, A., 632.

derivatives (GIRARD), 1873, 912; (LADENBURG), 1878, A., 54;

(STAATS), 1880, A., 386.

ferrocyanides (EISENBERG), 1881, A., 261.

sulphate, action of heat on (NEVILLE and WINTHER), 1880, T., 625.

action of potassium dichromate on (PERKIN), 1879, T., 728.

oxidation of a mixture of aniline sulphate and (PERKIN), 1879, T., 728.

separation of, from *p*-toluidine (BINDSCHEDLER), 1873, 911.

o-**Toluidine**, 4-bromo- (HÜBNER and ROOS), 1874, 165.

4- and 5-bromo- and their derivatives (WROBLEWSKI), 1874, 51.

3:5:4-*d*-bromido- (WROBLEWSKI), 1878, A., 978.

(*Toluene compounds* $Me=1$.)

o-Toluidine. 5:3-bromonitro- (WROBLEWSKI, 1878, A., 977.

5:3- and 3:5-bromonitro- (NEVILLE and WINTHER, 1880, T., 432.

4-chloro- (ENGELBRECHT), 1874, 986.

4:6-dichloro- (WROBLEWSKI), 1874, 56.

6-nitro- (CUNERTH), 1874, 902; 1875, 82.

3-5-dinitro- (STAEDEL), 1881, A., 724; (KAYSER), 1882, A., 1203.

m-Toluidine (LIMPRICHT), 1874, 901; (LORENZ), 1875, 80; (WROBLEWSKI), 1878, A., 977; (WIDMAN), 1880, A., 635.

preparation of (VIENNE and STEINER), 1881, A., 721; (WIDMAN), 1882, A., 47.

preparation of, from commercial aniline (SCHAD), 1874, 377.

ferrocyanides (EISENBERG), 1881, A., 261.

estimation of, in crude toluidine (WURSTER and RIEDEL), 1880, A., 110.

m-Toluidine, 4- and 6-bromo-, and their derivatives (WROBLEWSKI), 1874, 53; (HÜBNER and ROOS), 1874, 165. 5-bromo- (WROBLEWSKI), 1878, A., 977.

preparation of orcinol from (NEVILLE and WINTHER), 1882, T., 420.

6-bromo-, preparation of (NEVILLE and WINTHER), 1880, T., 431.

5:6-dibromo- (NEVILLE and WINTHER), 1880, T., 434.

2:4:6-tribromo- (WROBLEWSKI), 1874, 53; (LIMPRICHT), 1874, 901; (NEVILLE and WINTHER), 1880, T., 440.

5:6-bromonitro- (NEVILLE and WINTHER), 1880, T., 630.

4-chloro- (ENGELBRECHT), 1874, 986.

6-chloro- (WROBLEWSKI), 1874, 55.

5-nitro- (BECKER), 1882, A., 1197.

preparation of (NEVILLE and WINTHER), 1882, T., 416.

p-Toluidine, conversion of *p*-toluic acid into (LOSSEN), 1875, 769.

action of benzotrichloride on (STEBBINS), 1880, A., 880.

action of, on chloral (WALLACH), 1875, 350.

action of hydrogen dioxide on (LEEDS), 1882, A., 502.

oxidation of, by potassium permanganate (HOOGWERFF and VAN DORP), 1878, A., 297, 973.

oxidation product of (BARSILOWSKY), 1874, 273; 1878, A., 300; 1879, A., 237; 1881, A., 432.

(*Toluene compounds* $Me=1$.)

p-Toluidine, some products of the oxidation of (PERKIN), 1880, T., 546.

compounds of, with mercuric bromide and iodide (KLEIN), 1880, A., 632.

derivatives (STAATS), 1880, A., 386.

cobalt chloride (LIPPMANN and VORTMANN), 1879, A., 461.

hydrochloride, heat of formation of (LUGININ), 1879, A., 871.

mucate (KÖTTNITZ), 1873, 165.

dry distillation of (LICHTENSTEIN), 1881, A., 721; 1882, A., 178.

platinocyanide (SCHOLZ), 1881, A., 708.

sulphate, action of potassium dichromate on (PERKIN), 1879, T., 728.

oxidation of a mixture of aniline sulphate and (PERKIN), 1879, T., 728.

silver sulphate and nitrate (MIXTER), 1881, A., 1129.

sulphatoperiodide (JÖRGENSEN), 1877, i., 716.

separation of, from *o*-toluidine (BINSCHIEDLER), 1873, 911.

p-Toluidine, 2-bromo-, preparation of (NEVILLE and WINTHER), 1881, T., 85.

3(?)-bromo-, formation of (v. PECHMANN), 1875, 79.

3-bromo- and 3:5-dibromo- (WROBLEWSKI), 1874, 51.

3:5-dibromo- (MAZZARA), 1880, A., 879.

2:3:5-tribromo-, preparation of (NEVILLE and WINTHER), 1881, T., 85.

tetrabromo-, preparation of (NEVILLE and WINTHER), 1881, T., 85.

3:5-bromonitro- (WROBLEWSKI), 1878, A., 977.

2- and 3-chloro- (WROBLEWSKI), 1874, 55.

3:5-diiodo- (MICHAEL and NORTON), 1878, A., 407.

m-nitro- (FRIEDERICI), 1879, A., 311.

2-nitro-, crystalline form of (PANE-BIANCO), 1880, A., 105.

silver nitrate (MIXTER), 1881, A., 1130.

3:5- and 2:6-dinitro- (BEILSTEIN), 1880, A., 635.

ψ-Toluidine. See *o*-Toluidine.

Toluidines, some derivatives of (NEVILLE and WINTHER), 1881, T., 84.

carbamides derived from (COSACK), 1880, A., 245.

succinyl-compounds of (DE BECHI), 1879, A., 461, 527.

(*Toluene compounds* $Me=1$.)

- 2-Toluidine-3:5-disulphonic acid, position of the sulphonic group in, and preparation of orcinol from (NEVILLE and WINTHER), 1882, T., 421.
- 4-Toluidine-2:3-disulphonic acid (v. PECHMANN), 1875, 80.
- Toluidinesulphonic acid, a new (HAYDUCK), 1875, 1030.
- Toluidine-2-sulphonic acid, 4-bromo- (LIMPRICHT), 1875, 265; (SCHÄFER), 1875, 269, 462.
- Toluidine-3-sulphonic acid, 4- and 6-bromo- (LIMPRICHT), 1875, 264; (SCHÄFER), 1875, 369, 462.
- o*-Toluidinesulphonic acids and *dibromo*- (LIMPRICHT), 1874, 73; 1875, 368; (GERVER), 1874, 166.
- 2-Toluidine-3-sulphonic acid (v. PECHMANN), 1875, 80.
- 2-Toluidine-1-sulphonic acid (LIMPRICHT), 1874, 904; 1875, 268; (WECKWARTH), 1874, 1093; (HAYDUCK), 1874, 1094; 1875, 461.
- 3:5-*dibromo*- (HAYDUCK), 1874, 1095; 1875, 462; (LIMPRICHT), 1875, 268.
- 2-Toluidine-5-sulphonic acid (LIMPRICHT), 1874, 73; 1875, 368; (GERVER), 1874, 166; (PAGEL), 1875, 897; (NEVILLE and WINTHER), 1880, T., 625.
- constitution of, and action of *o*-toluidine on (NEVILLE and WINTHER), 1880, T., 631.
- 3-bromo- (NEVILLE and WINTHER), 1880, T., 627.
- 3-Toluidine-2-sulphonic acid (LIMPRICHT), 1874, 901; (LÖRENZ), 1875, 81.
- 3-Toluidine-4-sulphonic acid (HAYDUCK), 1875, 461.
- p*-Toluidinesulphonic acids (LIMPRICHT), 1874, 991.
- 4-Toluidine-2-sulphonic acid (JENSSEN), 1874, 479; 1875, 77; (WECKWARTH), 1874, 1093.
- nitrodiazo-compound of (PAGEL), 1875, 899.
- bromo- (JENSSEN), 1874, 480.
- formation of (JENSSEN), 1875, 77.
- 4-Toluidine-3-sulphonic acid (v. PECHMANN), 1875, 78; (NEVILLE and WINTHER), 1880, T., 625.
- 6-bromo- (v. PECHMANN), 1875, 79.
- p*-Toluo-*o*-nitranilide and *p*-toluo-*m*-nitro-*p*-toluidide (HÜBNER), 1882, A., 504.
- p*-Toluo-nitrile and some of its derivatives (PATERNO and SPICA), 1875, 642.
- conversion of, into ditolylthiocarbimide (WEITH), 1873, 908.

(*Toluene compounds* $Me=1$.)

- p*-Toluo-thiamide (PATERNO and SPICA), 1875, 642.
- p*-Toluoxy-lidide, and nitro- (BRÜCKNER), 1881, A., 94; (HÜBNER), 1882, A., 504.
- p*-Toluo-ylacrylic acid (v. PECHMANN), 1882, A., 1074.
- Toluo-ylbenzoic acid (WEILER), 1875, 451; (ADOR and CRAFTS), 1878, A., 105.
- p*-Toluo-yl-*o*-benzoic acid, and its salts (FRIEDEL and CRAFTS), 1881, A., 731.
- p*-Toluo-ylcarboxylic acid, and some of its salts (ROSE), 1882, A., 194.
- Toluo-quinhydrone (NIETZKI), 1877, ii., 476.
- Toluo-quinol (2:5-*dihydroxytoluene*; *hydro-toluo-quinol*) (NIETZKI), 1877, ii., 476; (NEVILLE and WINTHER), 1882, T., 423.
- preparation of (NIETZKI), 1878, A., 315.
- action of potassium hydrogen carbonate on (BRUNNER), 1881, A., 1141.
- derivatives of (NIETZKI), 1878, A., 868.
- tetrachloro- (BRÄUNINGER), 1878, A., 147.
- Toluo-quinolcarboxylic acid. See Dihydroxytoluic acid.
- Toluo-quinoline. See Methylquinoline.
- Toluo-quinone (NIETZKI), 1877, ii., 475; 1878, A., 794.
- preparation of (NIETZKI), 1878, A., 315.
- 3:4:6-*trichloro*-, action of ammonia and amines on (v. KNAPP and SCHULTZ), 1882, A., 510.
- tetrachloro- (BRÄUNINGER), 1878, A., 146.
- nitro- (ETARD), 1881, A., 583.
- formation of (ETARD), 1877, ii., 476.
- iso*-Toluo-quinone (SPICA), 1882, A., 1065.
- α -Toluo-ylamide. See Phenylacetamide.
- Toluo-ylene. See Toluene.
- p*-Tolyl benzyl ketone (*methyledeoxybenzoin*) (MANN), 1881, A., 1034.
- m*-Tolyl benzyl oxide (ORTH), 1882, A., 1204.
- Tolyl benzyl oxides, *o*- and *p*- (STAEDEL), 1881, A., 724.
- Tolyl ethyl ether. See Ethoxytoluene.
- Tolyl ethyl *d*/sulphoxide. See Ethylic toluene-*p*-thiosulphonate.
- o*-Tolyl ethylene ether. See Ethylene-oxytoluene.
- p*-Tolyl methyl ketone (MICHAELIS), 1882, A., 970.
- o*-Tolyl mercaptan, and bromo- (HÜBNER and POST), 1874, 58.

(*Toluene compounds* $Mc=1$.)

m-Tolyl mercaptan (HÜBNER and POST), 1874, 60.

p-Tolyl mercaptan, preparation of (SCHILLER and OTTO), 1877, i., 306.

action of chlorosulphonic acid on (BECKURTS and OTTO), 1879, A., 230.

action of sulphuric acid on (OTTO), 1880, A., 810.

Tolyl mercaptans, amido- (HESS), 1881, A., 596.

p-Tolylacetamidine (*ethenyltolylamidine*) (BERNTHSEN and TROMPETTER), 1879, A., 146.

Tolylacetic acids, *o*- and *p*-, and their salts (RADZISZEWSKI and WISPEK), 1882, A., 1283.

o-Tolylamidoacetic acid (*o*-tolylglycine) (STAATS), 1880, A., 387; (COSACK), 1880, A., 713.

p-Tolylamidoacetic acid (*p*-tolylglycine; *p*-tolylglycine), and its derivatives (MEYER), 1876, i., 401; (SCHWEBEL), 1878, A., 302.
preparation of (MEYER), 1882, A., 519.

Tolylamine. See Toluidine.

Tolylarsenic acids, *o*- and *p*-, and their salts (LA COSTE and MICHAELIS), 1879, A., 163; 1880, A., 397.

Tolyl-arsenic and -arsenious chlorides, *o*- and *p*- (LA COSTE and MICHAELIS), 1879, A., 163.

p-Tolylarsenious oxide (LA COSTE), 1881, A., 904.

Tolylarsenious oxides, *o*- and *p*- (LA COSTE and MICHAELIS), 1879, A., 163; 1880, A., 397.

Tolylbenzamidine, amido- (BERNTHSEN and TROMPETTER), 1879, A., 147.

p-Tolylbenzylcarbinol (MANN), 1881, A., 1035.

p-Tolylbenzylsulphone (OTTO), 1880, A., 811.

Tolylbisthioglycollic acid (GABRIEL), 1880, A., 33.

p-Tolylboric acid and chloride (MICHAELIS and BECKER), 1882, A., 732.

Tolylbutane. See *iso*Butyltoluene.

Tolylcarbamide (SCHWEBEL), 1878, A., 798.

p-Tolylcarbamide (STEINER), 1875, 882.

Tolylcarbamides, *o*-, *m*- and *p*- (COSACK), 1880, A., 245, 713.

Tolylchloracetamide, and the action of ammonia on (TOMMASI), 1874, 623.

p-Tolyltrimethylsulphonamide (BEHREND), 1882, A., 1283.

(*Toluene compounds* $Mc=1$.)

Tolyleneanisaldehydine (LADENBURG and RÜGHEIMER), 1879, A., 234.

Tolylenebenzaldehydine and its ethiodide and methiodide (LADENBURG), 1878, A., 571.

Tolylene-blue, reduction of, and its leuco-compound (WITT), 1879, T., 360.

Tolylenediamine (*diamidotoluene*) hydrochloride (FRIEDERICI), 1879, A., 311.

Tolylene-2:4-diamine and its derivatives (LUSSY), 1875, 274, 770, 1036; (LADENBURG), 1876, i., 401; (HELL and SCHOOP), 1879, A., 715.
bromo- and nitro- (RUEHMANN), 1882, A., 392.

Tolylene-2:5-diamine (NIETZKI), 1877, ii., 475; 1880, A., 162; (LADENBURG), 1879, A., 232.

Tolylene-3:4-diamine, reactions of, with benzaldehyde, phthalaldehyde, and formic acid (LADENBURG), 1877, ii., 752.

compounds of, with salicylaldehyde (LADENBURG), 1878, A., 572.

derivatives of (LADENBURG and RÜGHEIMER), 1879, A., 715.

Tolylenediamines (NIETZKI), 1880, A., 162.

Tolylene-2:4-diaminesulphonic acids (WIESINGER), 1874, 805.

Tolylene-2:6-diamine-4-sulphonic acid, α -bromo- (SCHWANERT), 1877, ii., 471.

Tolylene-2:6-diamine-4-sulphonic chloride, bromide, nitrate, and sulphate (SCHWANERT), 1877, ii., 472.

Tolylenedibenzenyldiamidine (BERNTHSEN and TROMPETTER), 1879, A., 147.

Tolylenediglycollic acid ("*dioreoxydiacetic acid*") and its salts (SAARBACH), 1880, A., 393.

Tolylene-5-dimethyl-2:5-diamine (WURSTER and RIEDEL), 1880, A., 109.

oxidation of (RIEDEL), 1880, A., 386.

Tolylenediurethane. See Ethylic tolylenedibamate.

Tolylene-ethenyldiamine (*ethenyltolylendiamine*) (HOBRECKER), 1873, 174; (LADENBURG and RÜGHEIMER), 1879, A., 716.

ethiodide (HÜBNER), 1882, A., 505.

Tolylene-furaldehydine and its salts (LADENBURG), 1878, A., 572; (LADENBURG and RÜGHEIMER), 1879, A., 234.

o-Tolylenehydratecarbonic anhydride. See α -Benzylphthalide.

(Toluene compounds Me=1.)

- Tolylenepentenylidiamine** (*anhydro-
xaleryldiamidotoluene*) (FRIEDERICHT),
1879, A., 312; (HUBNER), 1882, A.,
180.
- Tolylenetetramethyl-2,5-diamine**
(WURSTER and RIEDEL), 1880, A., 109.
- m-Tolylenethiocarbamide and tolylene-
dithiodicarbamide** (LUSSEY), 1875, 271.
- Tolylenic isocyanate** (LUSSEY), 1875, 271.
- Tolyethane, α -amido-** (*ethyl- α -amido-
toluene*), and its derivatives (BENZ),
1882, A., 1284.
- Tolyethylbenzoic acid, ω -trichloro-**
(FISCHER), 1875, 155.
- p-Tolylethylsulphone** (OTTO), 1880, A.,
511.
- p-Tolylethylthiocarbamate.** See Ethylie
p-tolyl-*mono*- and *di*-thiocarbamates.
- Tolylethylthiocarbamides, *o*- and *p*-**
(STAATS), 1880, A., 387.
- Tolyglycocine** (*tolyglycine*). See
Tolylamidoacetic acid.
- Tolyglycollamide** (*tolyglydroxyacet-
amide*) (TOMMASI), 1874, 624.
- p-Tolylglyoxylic acid.** See Tolnol-
carboxylic acid.
- o*-Tolylguanidine** (ERLENMEYER), 1882,
A., 191.
- Tolyguanidines and their cyanogen
derivatives** (BERGER), 1880, A., 214.
- p-Tolylyhdantoic acid** (SCHWEBEL),
1878, A., 798.
- p-Tolylyhdantoin** (SCHWEBEL), 1878,
A., 798.
- o*-Tolylyhydrazine and its salts** (BÖSLER),
1882, A., 1062.
- p-Tolylyhydrazine** (FISCHER), 1875,
1035.
- Tolyhydroxyacetamide.** See Toly-
glycollamide.
- Tolylic acetate, action of sodium on**
(PERKIN and HODGKINSON), 1880,
T., 489.
- chloride. See Xylene, ω -chloro-.
- cyanide. See Tolnitrile.
- disulphoxide. See Tolylic toluene-
p-thiosulphonate.
- ethylie carbonates, *o*-, *m*- and *p*-
(BENDER), 1881, A., 48.
- α -thiobenzoate (SCHILLER and OTTO),
1877, i., 468.
- toluene-*p*-thiosulphonate (PAULY and
OTTO), 1877, i., 463; 1878, A.,
414; 1879, A., 243.
- measurement of the crystals of
(OTTO), 1882, A., 833.
- p-Tolylimidodiacetic acid and its copper
and silver salts** (MEYER), 1882, A.,
519.
- p-Tolylmethylamine.** See *p*-Xylidine.

(Toluene compounds Me=1.)

- Tolylmethylthiocarbamates.** See
Methylie *o*- and *p*-tolyl-*mono*- and *di*-
thiocarbamates.
- p-Tolyl- β naphthylamine** (MERZ and
WEITH), 1882, A., 179.
- Tolynaphthylethenylamidine** (WAL-
TACH), 1877, i., 91.
- Tolyl- α - and - β naphthylthiocarb-
amides, *o*- and *p*-, and their decom-
position by hydrochloric acid** (MAIN-
ZER), 1882, A., 1212.
- Tolyloxamethane.** See Ethylie tolyl-
oxamate.
- p-Tolyloxamic acid** (KLINGER), 1877,
i., 712.
- Tolyloxymethylenephthalide** (GA-
BRIEL), 1881, A., 733.
- Tolylphenol** (MAZZARA), 1880, A., 161.
- Tolylphenyl.** See Methylidiphenyl.
- Tolylphenyl-.** See Phenyltolyl-.
- p-Tolylphosphine** (MICHAELIS and
PANER), 1882, A., 963.
- Tolyphosphinic acid.** See Toluene-
phosphinic acid.
- p-Tolylphosphonium iodide** (MICHAELIS
and PANER), 1882, A., 963.
- Tolyphosphorous acid.** See Toluene-
phosphonic acid.
- p-Tolylpyrrolidine** (LICHTENSTEIN), 1882,
A., 178.
- Tolyquinines** (CLAPS and BOTTLER),
1881, A., 620.
- Tolylsalicylic acid** (WILLIAMS), 1878,
A., 576.
- Tolyl-series, amidoazo-compounds in the**
(NIEZKI), 1877, ii., 453, 767.
- Tolylsuccinamic acids, *o*- and *p*-** (DE
BECHT), 1879, A., 527.
- Tolylsuccinamides, *o*- and *p*-** (DE
BECHT), 1879, A., 527.
- Tolylsuccinimides, *o*- and *p*-** (DE BECHT),
1879, A., 461, 527.
- p-Tolylsuccinimide, and 2-nitro-** (TAY-
LOR), 1876, i., 602.
- p-Tolylsulphoneacetic acid** (GABRIEL),
1881, A., 716.
- Tolylsulphuric acids** (BAUMANN), 1877,
i., 206; 1879, A., 119.
- p-Tolylthiocarbamide** (DE CLERMONT
and WEHRLIN), 1877, i., 70.
- Tolylthiocarbamides, *o*- and *p*-** (STAATS),
1880, A., 386.
- o*-Tolylthiocarbimide, and the action of
chlorine on** (LACHMANN), 1879, A.,
935.
- m-Tolylthiocarbimide, desulphuration
of, with copper-dust** (WEITH), 1873,
902.
- Tolylthiocarbimideglycollides, *o*- and
p-** (VÖLTZKOW), 1881, A., 43.

(*Toluene compounds* $Me=1$.)

- p*-**Tolythiohydantoin** (MEYER), 1878, A., 295.
- Tolythiourethane** (LIEBERMANN and NAFANSON), 1881, A., 45.
- "**Tolytri-*p*-tolylene triamine**" (PERKIN), 1880, T., 552.
- o*-**Tolylurethane** (COSACK), 1880, A., 245.
- m*-**Tolylurethane** (COSACK), 1880, A., 713.
- Tomatoes**, tinned, composition of (WIGNER), 1881, A., 212.
- Tonga** (GERRARD), 1880, A., 836.
- Tong-Yeou** (*Elaeococca Vernicia*, oil-tree of China), constituents of the seed of (CLOËZ), 1876, i., 616; ii., 102.
- Topaz** (KLEMM), 1874, 665; (FRENZEL), 1882, A., 473.
- Russian (SELIGMANN), 1881, A., 691.
- and corundum, inferences as to the formation of (HARTLEY), 1876, ii., 248.
- behaviour of, at high temperatures (RAMMELSBERG), 1879, A., 772.
- fluid enclosures in (ERHARD and STELZNER), 1881, A., 25.
- Torbanite**, formation and constitution of (SKEY), 1875, 435.
- inorganic constituents of (DIXON), 1881, A., 988.
- Torpedoes**, lecture-experiments on (v. BASAROFF), 1877, ii., 275.
- Torsion**, elasticity of (PISANI), 1877, i., 39.
- Touchstone**. See Lydian stone.
- Tourmaline** (ROSTER), 1878, A., 282.
- from Chili and from the Hórlberg (VOM RATH), 1881, A., 550.
- as a transformation-product of corundum (GENTH), 1874, 1068.
- electrical phenomena of (J. and P. CURIE), 1881, A., 339.
- black and green (GORCEIX), 1878, A., 118.
- Towns**, cleansing of (FISCHER), 1874, 400; 1878, A., 813.
- Toxicological cases**, detection of zinc in (RAOULT and BRETON), 1877, ii., 928; (OTTO), 1881, A., 194.
- Toxicological investigations** (SELM), 1873, 1165; 1874, 607; (POLECK and BIEFEL), 1878, A., 906; 1881 A., 853.
- See also Physiological action and Poisoning.
- Toxiresin** (SCHNIEDEBERG), 1875, 1266.
- Trachyte**, composition of (HILGER), 1877, ii., 853.
- from Wollerlingen in the Westerwald, composition of (HILGER), 1878, A., 208.
- Trachyte**, solvent action of gypsum on (COSSA), 1873, 1202.
- minerals contained in certain, from the ravine of Riveau Grande, at Mont Dore (GONNARD), 1880, A., 225.
- auritic of the Andes (ARTOFÉ), 1874, 559.
- of the Tokaj-Eperieser-Gebirge (DOELTER), 1875, 624.
- Transpiration** of plants. See under Agricultural Chemistry.
- Trap**, some amorphous forms of (TÖRNEBOHM), 1875, 1170.
- Trap rocks** of Connecticut (DANA), 1875, 874; 1880, A., 536; (HAWES), 1876, i., 350.
- Trees**. See under Agricultural Chemistry.
- Trehalose** from Fungi (MÜNTZ), 1873, 759; 1875, 380.
- Tremolite** (*byssolite*; *grammatite*) (v. ZEPHAROVICH), 1879, A., 364; 1881, A., 996; (SCHMID), 1882, A., 582.
- a variety of, called Goldsmith's hexagonite (KÖNIG), 1877, ii., 720.
- Trenching**, influence of, on the temperature and moisture of soil (WOLLNY), 1881, A., 60.
- Triacetaldehydes**, *trithio*-, α - and β - (KLINGER), 1877, ii., 305; 1878, A., 720.
- Triacetic acid**, potassium and sodium salts of (LESCEUR), 1874, 870.
- Triacetin**. See Glyceryl triacetate.
- Triacetonalkamine** (*hydrazyltetramethyl-hexahydropyridine*) and ψ -**triacetonalkamine**, formation of, and their salts (HEINTZ), 1877, i., 592.
- Triacetonamine** and some of its salts (HEINTZ), 1874, 1081; 1875, 351; 1876, i., 382.
- products of oxidation of (HEINTZ), 1880, A., 101.
- alcohol-bases formed by the hydrogenisation of (HEINTZ), 1877, i., 592.
- regeneration of diacetonamine from, and formation of a fifth acetone base (HEINTZ), 1876, ii., 292.
- chromates (HEINTZ), 1880, A., 101.
- nitrosamine (HEINTZ), 1877, ii., 428.
- decomposition of, by acids (HEINTZ), 1877, ii., 583.
- iso***Triacetonamine**, a new acetone base (HEINTZ), 1876, i., 383.
- Triacetonediamine** (HEINTZ), 1881, A., 420.
- 1:2:4-Triacetoxyanthraquinone** (SCHUNCK and ROEMER), 1877, i., 673; ii., 625; (ANON.), 1878, A., 737.

- 1:2:2'-Triacetoxyanthraquinone (PERKIN, 1873, 130.
melting-point of (SCHENCK and ROEMER), 1878, A., 322.
- 1:2:3'-Triacetoxyanthraquinone (SCHENCK and ROEMER), 1878, A., 322.
- Triacetoxydiphenylphthalide (V. PICHMANN), 1882, A., 184.
- Triacetoxyquinone (MERZ and ZETTER), 1880, A., 114.
- Triacetylaurin (CARO and GRAEBE), 1878, A., 794.
- Triacetylcerulein (V. BUCHKA, 1882, A., 62.
- Triacetylcotin (V. JOBST and HESSEL, 1880, A., 326.
- Triacetylglycerol. See Glyceryl triacetate.
- Triacetylhydroxychrysazin (LIEBERMANN and GIESEL, 1876, ii., 90.
- Triacetylhydrocyanorosolic acid (CARO and GRAEBE), 1878, A., 794.
- Triacetylleucaurin (DALE and SCHORLEMMER), 1873, 440; (ZULKOWSKI), 1881, A., 900.
- Triacetylleucorosolic acid (GRAEBE and CARO), 1876, i., 590; 1878, A., 794.
- Triacetylphenylphthalol (V. BAEYER), 1880, A., 655.
- Triacetylphlobaphen (BÖTTINGER), 1880, A., 650.
- Triallylamine (GROSHEINTZ), 1879, A., 780; (PINNER), 1880, A., 99.
active and inactive, and some of their salts (PLIMPTON), 1881, T., 333; A., 34.
- Triisomylcarbamide (CUSTER), 1879, A., 913.
- Triisomylphosphine and its oxide (V. HOFMANN), 1873, 883.
- Trianosperma filifolia* (Tayuya) (ANON.), 1876, i., 431; (PARODI), 1880, A., 721.
- Trianospermine (PARODI), 1880, A., 722.
- Tribenz-arsenious and -arsinic acids (LA COSTE), 1881, A., 905.
- β -Tribenzhydroxylamine, crystalline form of (KLEIN, 1873, 585.
- Tribenzhydroxylamines (LOSSEN), 1875, 634; 1877, ii., 328; (STEINER), 1876, i., 270.
- 1:2:2'-Tribenzoxanthraquinone (PERKIN), 1873, 430.
- Tribenzoyl-2:4-diamidophenol (STUCKENBERG), 1877, ii., 193.
- o*-Tribenzoylbenzene (GABRIEL and MICHAEL), 1878, A., 734; (GABRIEL), 1881, A., 733.
- Tribenzoylleucaurin (DALE and SCHORLEMMER), 1873, 441.
- Tribenzoylmorphine (POLSTORFF), 1880, A., 107.
- Tribenzoylphlobaphen (BÖTTINGER), 1880, A., 650.
- Tribenzoylrhamnetin (LIEBERMANN and HOERMANN), 1879, A., 272.
- Tribenzylamine (SPICA), 1881, A., 262.
*tri*amido- and *tri*-*p*-nitro- (STRACKOSCH), 1874, 78.
tri-*p*-bromo- (JACKSON and LOWERY, 1882, A., 170.
tri-*p*-chloro-, and its salts (JACKSON and FIELD), 1881, A., 804.
tri-*p*-iodo- (MABERY and JACKSON), 1878, A., 422.
- Tribenzylmethyllummonium methyl sulphate (CLAËSSON and LUNDVALL), 1881, A., 241.
- Tribenzylphosphine (LETTS and COLLIE), 1882, A., 726.
oxide and its salts (FLEISSNER), 1881, A., 263; (LETTS and COLLIE), 1881, A., 722; 1882, A., 724.
- Tributylamine and its butyl iodide (LIEBEN and ROSSI), 1873, 367.
- Triisobutylamine (SACHTLEBEN), 1878, A., 849.
boiling point of (LADENBURG), 1879, A., 704.
butyl iodide (SACHTLEBEN), 1878, A., 850.
- Triisobutylene (*dodecylene*) (LERMONTOFF), 1878, A., 963; (DOBBIN), 1880, T., 241; (BUTLEROFF), 1880, A., 230.
oxidation of (BUTLEROFF), 1880, A., 230.
- Triisobutylidenediamine (*hyprobutyramide*), and the action of hydrocyanic acid on (LIPP), 1882, A., 164.
- Triisobutylphosphine hydriodide (V. HOFMANN), 1873, 882.
- Tricalcium phosphate. See under Calcium.
- Tricarballic acid (MIEHLE), 1878, A., 490; (CLAUS), 1878, A., 856; (ANON.), 1880, A., 864; (CLAUS and LISCHKE), 1881, A., 800.
occurrence of, in beet-juice (V. LIPPMANN), 1878, A., 662; 1880, A., 36.
formation of (CLAUS), 1876, i., 931.
See also Propanetricarboxylic acid.
- Tricarbinols (KOLBE), 1881, A., 82.
- Tricarboxypyridenic acid. See Pyridine-tricarboxylic acid.
- p*-Tricarboxytriphenylarsine and its hydroxide (LA COSTE), 1881, A., 905.

- iso*Trichlorhydrin. See Propane, *oxy-trichloro*.
- Tricodaine (WRIGHT), 1874, 107.
- Tricresyl-. See Tritolyl-.
- Tricrotonylenamine, and its salts (WURTZ), 1879, A., 780.
- Tridecoic acid (KRAFFT), 1880, A., 34.
- Tridymite (VOM RATH), 1873, 250; (HAUFFEUILLE), 1878, A., 205.
from the Euganean Hills, optical characters of (SCHUSTER), 1878, A., 945.
from the Hargittastock, Siebenbürgen (DOELTER), 1877, ii., 729.
from New Zealand (VOM RATH), 1881, A., 551.
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artificial production of (FRIEDEL and SARASIN), 1881, A., 384.
optical properties and crystalline form of (V. LASAULX), 1879, A., 358, 605.
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- m*-5-Xylidine (WROBLEWSKI), 1878, A., 51; 1881, A., 433.
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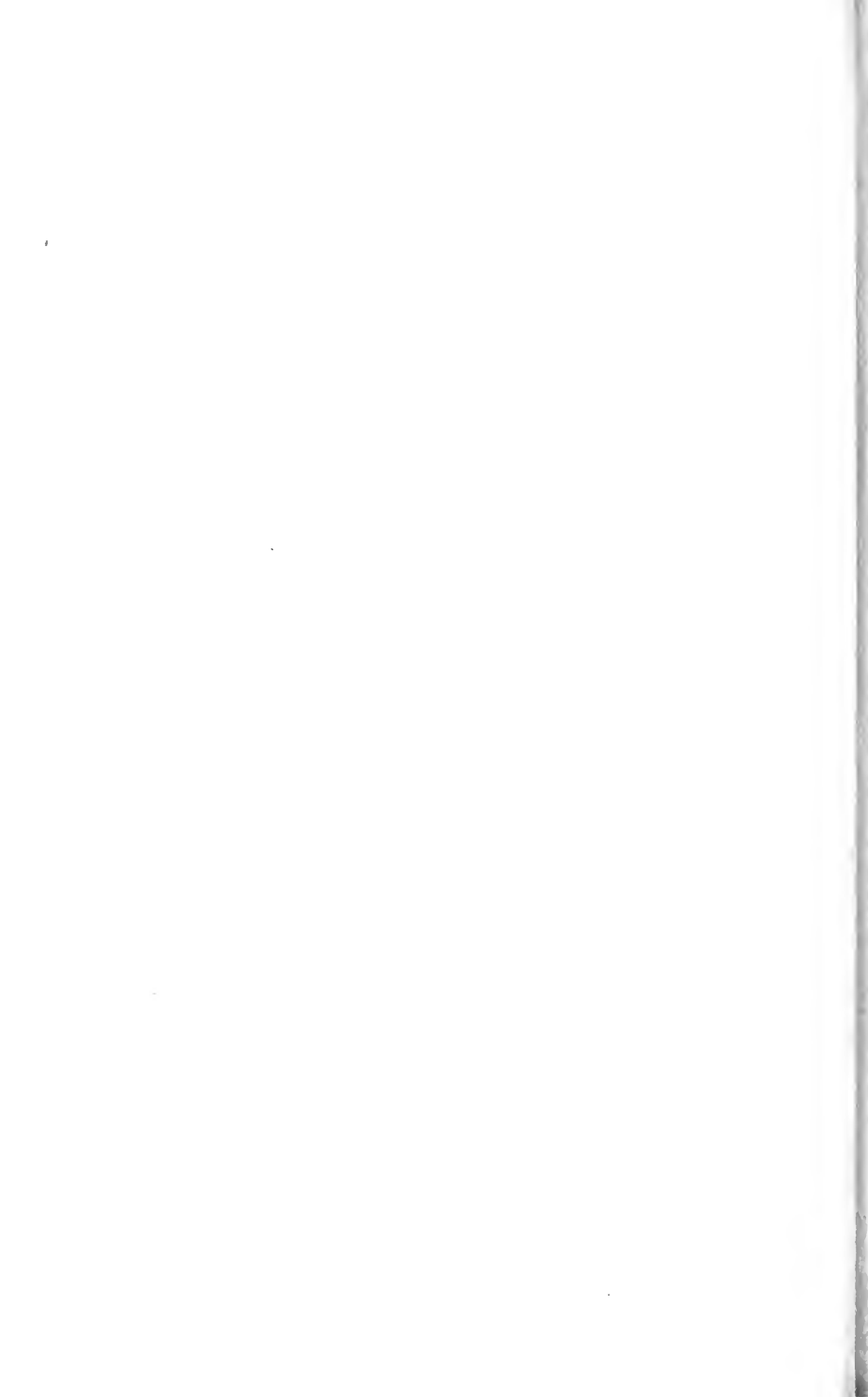
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